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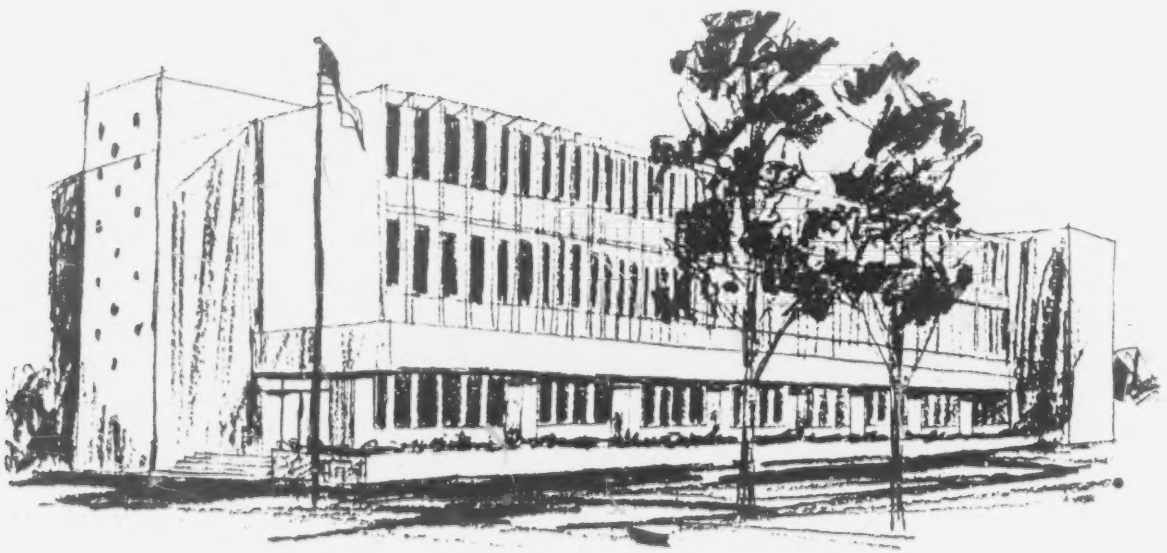
A SURVEY OF THE ENERGY AND WATER USE OF SELECTED HOTELS AND MOTELS

1981



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THE HOSPITALITY, LODGING
AN AFFILIATE OF THE AMERICAN HOTEL & MOTEL ASSOCIATION
& TRAVEL RESEARCH FOUNDATION · INC.
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FOREWORD

Part I of this report contains the 1981 energy use data for 261 hotel/motel properties located in 40 states and the District of Columbia. It compares the energy use of the same properties for 1980 and 1981.

The 1980 versus the 1981 energy use data of each of the 234 conventional hotels/motels is listed in Appendix A by size (number of guest rooms). Appendix B lists the energy use of 27 all-electric properties - 1980 versus 1981. Appendix C includes a listing of all 261 properties by location (state and region).

The 1981 energy use data represents properties with a total of 64,607 guest rooms and a total interior building area of 38,493,023 square feet. The total energy requirement of the 261 properties was 5.26 trillion Btu's - an average of 136,620 Btu/sq ft/yr, down from 141,883 Btu/sq ft in 1980.

The 1981 data represents 3.2 percent of the total number of properties and 5.8 percent of the total number of rooms of the membership of the American Hotel and Motel Association as of December 31, 1981.

	AH&MA Membership	Properties Surveyed 1981	Percent of AH&MA Membership
Number of Properties	8,212	261	3.2
Number of Rooms	1,115,719	64,607	5.8

Since the Energy Technical Center came into being in early 1977, the staff has conducted annual energy use surveys. The continuing analysis of the energy use over the past five years is highly indicative that the industry has made substantial strides in energy conservation and management practices. A summary of the energy surveys conducted for the years 1977-1981 is as follows:

	1977	1978 vs 1979 (Same Properties)		1979 vs 1980 (Same Properties)		1980 vs 1981 (Same Properties)	
No. of Properties	210	284	284	323	323	261	261
No. of Guest Rooms	59,648	68,911	69,368	70,311	71,137	64,293	64,607
Total Sq Ft (Millions)	42.6	40.4	40.8	39.8	40.3	38.5	38.5
Total Energy Use (Trillions of Btu's)	7.7	6.2	5.9	5.7	5.6	5.5	5.3
Btu/Sq Ft/Yr	181,685	153,308	143,977	143,055	137,801	141,919	136,620
Indicated decrease in Energy Use							
1978 versus 1977	--	15.6					
1979 versus 1978	--	--	6.1				
1980 versus 1979	--	--	--	--	3.7		
1981 versus 1980	--	--	--	--	--	--	3.7
1981 versus 1977	--	--	--	--	--	--	24.8

Part II of this report contains a survey of the domestic water use of 191 hotels/motels in 1981. The properties surveyed are located in 36 states and are of various sizes (number of guest rooms), types (transient, convention, resort) and have a variety of water-using facilities.

Water availability is becoming a serious problem in certain areas of the United States, and because of the need for new or expanded sewage disposal facilities in many communities, costs are increasing substantially. Therefore, since energy and water use are closely related and both are essential to the operation of a hotel/motel, the Energy Technical Center requested water use data from the participating properties in the 1981 annual energy use survey. Such requested data was received from 191 of the 261 properties included in the annual energy survey.

The Energy Technical Center believes that such water use data can provide water use guidelines to property owners/managers and, also, assist architect/engineer firms involved in designing and constructing hotels/motels, to consider factors that will conserve water.

* * *

I. A SURVEY OF THE ENERGY REQUIREMENTS OF 261 HOTELS AND MOTELS - 1981 versus 1980

A. INTRODUCTION

The survey of the energy requirements of 261 hotels/motels properties contained in this report are considered in two different aspects -

...energy requirements by size of property (number of guest rooms);

...by location (geographical area)

Appendix A lists the 1981 versus 1980 energy use data of each of the 234 properties with conventional energy systems by size of property. (Properties with conventional energy systems are defined as those where a combination of electricity and fossil fuel(s) are used for the operation of the property and comfort and needs of the guests.)

No. of Guest Rooms	No. of Conventional Properties
Up to 150 rooms	68
151 to 200 rooms	61
201 to 300 rooms	68
301 to 500 rooms	21
Over 500 rooms	16
Total	234

Appendix B lists the 1980 versus 1981 electricity use of 27 all-electric properties by size of property.

No. of Guest Rooms	No. of All-Electric Properties
Up to 150 rooms	19
Over 150 rooms	8
Total	27

Appendix C is a listing of the 261 properties (both conventional systems and all-electric) by state and regional location.

Region	No of Properties
Northeast	27
Midwest	66
Southeast	83
South Central	37
Rocky Mountain	17
Pacific Coast	31
Total	261

Location and Size Distribution of 261 Properties

Hotels and motels included in this report are located in 40 states and the District of Columbia. Table 1 is a summary of Appendices A and B and lists the properties by state location and size. Figure 1 graphically illustrates the number of properties by state location.

Diversity of Energy Use

To illustrate the wide diversity in energy use of the [illegible] the following is an assessment of the percentage, or nu[illegible] that fell within certain numerical ranges of usage.

	Btu
Minimum property	
27 properties (10%) were less than	88,466
52 properties (20%) were less than	100,688
78 properties (30%) were less than	114,667
104 properties (40%) were less than	125,847
130 properties (50%) were less than	134,775
Average - All properties	136,620
157 properties (60%) were less than	143,465
183 properties (70%) were less than	158,668
209 properties (80%) were less than	182,166

235 properties (90%) were less than	192,422
Maximum property	376,694

Energy Values

Throughout this report the following values were used for the various energy sources.

Energy Source	Unit	Value in British Thermal Units
Electricity	Kwh	,412 Btu
Natural Gas	Therm or 100 Cu Ft	100,000 Btu
Fuel Oil	gallon	140,000 Btu
Propane	gallon	91,500 Btu
Steam	pound	1,000 Btu

Indicated Energy Use Reduction - 1981 versus 1982

This report compares the energy use of the same hotels/motels (261 properties) for 1980-1981. The following summary indicates a reduction in energy use of 3.7 percent.

	261 Hotels/Motels Surveyed	
	1980	1981
Number of Guest Rooms	64,293	64,607
Total Sq Ft (Millions).....	38.5	38.5
Total Energy Use (Trillions of Btu's)	5.5	5.3
Btu/sq ft/yr	141,919	136,620
Indicated Decrease (1981 versus 1980)	--	3.7%

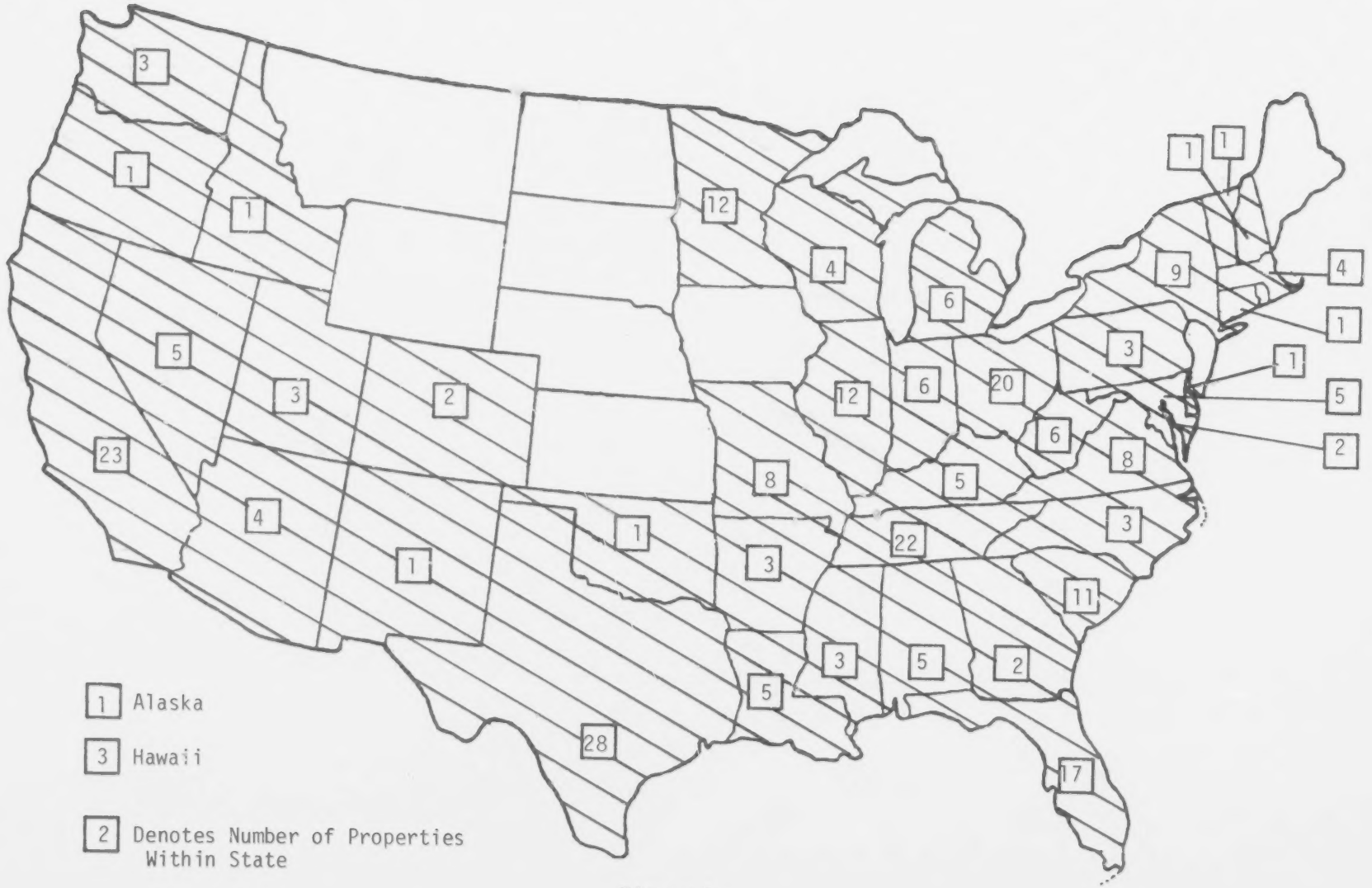

Figure 1

State Location of 261 Properties Surveyed

Table 1

Location and Size of 261 Hotel/Motel Properties
(1981 versus 1980 Energy Use Data on
File at ETC as of June 1, 1982)

State	Up to 150 Rooms	151 to 200 Rooms	201 to 300 Rooms	301 to 500 Rooms	Over 500 Rooms	Total Properties
Alabama	0	2	3	0	0	5
Alaska	0	0	1	0	0	1
Arizona	3	1	0	0	0	4
Arkansas	1	0	2	0	0	3
California	6	4	6	4	3	23
Colorado	0	2	0	0	0	2
Connecticut	0	0	1	0	0	1
Delaware	0	0	1	0	0	1
Dist. of Columbia	1	1	0	0	0	2
Florida	7	2	6	2	0	17
Georgia	0	1	0	0	1	2
Hawaii	0	0	1	1	1	3
Idaho	0	1	0	0	0	1
Illinois	2	1	4	2	3	12
Indiana	1	3	2	0	0	6
Kentucky	2	3	0	0	0	5
Louisiana	0	1	3	0	1	5
Maryland	2	1	2	0	0	5
Massachusetts	1	0	1	0	1	4
Michigan	1	3	2	0	0	6
Minnesota	2	5	1	3	1	12
Mississippi	0	1	2	0	0	3
Missouri	1	2	5	0	0	8
Nevada	0	1	2	0	2	5
New Hampshire	1	0	0	0	0	1
New Mexico	0	0	1	0	0	1
New York	1	4	2	1	1	9
N. Carolina	2	1	0	0	0	3
Ohio	10	2	5	3	0	20
Oklahoma	0	1	0	0	0	1
Oregon	0	0	0	1	0	1
Pennsylvania	1	0	1	1	0	3
S. Carolina	7	3	1	0	0	11
Tennessee	6	5	9	1	1	22
Texas	14	8	3	2	1	28
Utah	1	2	0	0	0	3

Table 1 (Cont'd)

Location and Size of 261 Hotel/Motel Properties
(1981 versus 1980 Energy Use Data on
File at ETC as of June 1, 1982)

State	Up to 150 Rooms	151 to 200 Rooms	201 to 300 Rooms	301 to 500 Rooms	Over 500 Rooms	Total Properties
Vermont	0	1	0	0	0	1
Virginia	7	1	0	0	0	8
W. Virginia	4	1	1	0	0	6
Washington	2	0	1	0	0	3
Wisconsin	2	2	0	0	0	4
Totals	89	67	69	21	16	261

Above 261 properties represent:

38,493,023 sq ft of building area
64,607 guest rooms

B. A SURVEY OF THE ENERGY REQUIREMENTS OF 234 HOTELS AND MOTELS WITH CONVENTIONAL ENERGY-USING SYSTEMS (By Size of Property).

Introduction

Appendix A presents the 1981 and 1980 energy use data for each of the 234 hotel/motel properties contained in the survey with conventional energy systems (electricity/fossil fuel) and is organized by number of guest rooms of each property. These data are the basis for the analyses contained in this section of the report.

Table 2 compares the 1981 with the 1980 energy requirements of the 234 conventional properties included in this survey. The table indicates that the average annual energy use by property size was as follows:

Size of Property	Btu/Sq Ft/Yr 1980	1981
...Up to 150 rooms (68 properties)	136,929	133,948
...151 to 200 rooms (61 properties)	144,128	141,379
...201 to 300 rooms (68 properties)	133,008	130,749
...301 to 500 rooms (21 properties)	125,920	118,050
...Over 500 rooms (16 properties)	158,610	150,832
...Average for 234 properties	143,463	138,214

Percentage-wise, on the basis of number of guest rooms, the distribution in 1981 of the 234 conventional properties was as follows:

Size of Property	% of Total Properties	% of Total Sq Ft	% of Total Energy Requirements
Up to 150 Rooms 68 properties	29	10	10
151 to 200 Rooms 61 properties	26	15	16
201 to 300 Rooms 68 properties	29	23	22
301 to 500 Rooms 21 properties	9	15	12
Over 500 Rooms 16 properties	7	37	40
	100	100	100

The above tabulation indicates that 68 properties (up to 150 rooms), or 29% of the total properties, used only 10% of the total annual energy requirement, while 16 properties (over 500 rooms), or 7% of total properties, used 40% of the annual energy requirements.

From Table 2 it is also indicated that as the size (number of guest rooms) of the property increases, the square feet per guest room also increases. This reflects the high ratio of public area to guest room area that is characteristic of the larger hotels.

Size of Property-1981	Sq Ft per Guest Room
Up to 150 rooms	456
151 to 200 rooms	534
201 to 300 rooms	519
301 to 500 rooms	696
Over 500 rooms	724
Average - All Properties	595

Table 2

Annual Energy Requirements
(1981 versus 1980)
234 Hotels/Motels with Conventional Energy Systems

By Number of Guest Rooms

	Total Sq Ft		Total Btu's (Millions)		Average Btu Sq Ft		Decrease
	1980	1981	1980	1981	1980	1981	1981 vs 1980
Up to 150 Rooms (68 properties)	3,847,110	3,845,592	526,782	515,108	136,929	133,948	-2.2
151 to 200 Rooms (61 properties)	5,610,400	5,648,812	808,613	798,626	144,128	141,379	-1.9
201 to 300 Rooms (68 properties)	8,540,639	8,528,743	1,135,975	1,115,129	133,008	130,749	-1.7
301 to 500 Rooms (21 properties)	5,463,933	5,448,705	688,020	643,219	125,920	118,050	-6.3
Over 500 Rooms (16 properties	13,637,061	13,637,061	2,162,976	2,056,909	158,610	150,832	-4.9
Total - 234 Properties	37,099,143	37,108,913	5,322,366	5,128,990	143,463	138,214	-3.6%

Guest Room Distribution by Size of Property

The following tabulation shows the distribution of guest rooms by size of property. Note that those properties over 500 rooms represent only 7% of total properties, but account for 30% of total rooms. On the other hand, those properties of less than 150 rooms represent 29% of total properties but only 13.5% of total rooms.

Size and No of Properties	No of Rooms Represented	Percent of Total Rooms	Average No. of rooms Per Property
Up to 150 rooms 68 properties	8,425	13.5	124
151 to 200 rooms (61 properties)	10,896	17.5	176
201 to 300 rooms (68 properties)	16,428	26.0	242
301 to 500 rooms (21 properties)	7,829	13.0	373
Over 500 rooms (16 properties)	18,832	30.0	1,177
234 Properties	62,410	100.0	267

Use of Electricity By Size of Property

Table 3 indicates that the use of electricity of the 261 properties in 1981 ranged from 16.3 Kwh/sq ft/yr for properties "301 to 500 rooms" to 19.9 Kwh/sq ft for properties "151 to 200 rooms". The average for all properties was 19.2 Kwh/sq ft/yr. (64,671 Btu's/sq ft)

Use of Fossil Fuels - By Size of Property

Table 4 lists fossil fuel use by size of property (number of guest rooms). The 234 properties with conventional energy systems surveyed had an average requirement in 1981 of 73,544 Btu's/sq ft verus 77,936 Btu's/sq ft in 1980; a decrease of 5.6 percent.

Table 3

Use of Electricity
(1980 versus 1981)
234 Hotels/Motels with Conventional Energy Systems

By Size of Property

	Total Square Feet		Total Electric (MM Btu)		Btu/Sq Ft/Yr		Kwh/Sq Ft/Yr	
	1980	1981	1980	1981	1980	1981	1980	1981
Up to 150 Rooms (68 properties)	3,847,110	3,845,592	263,765	255,153	68,562	66,349	20.1	19.4
151 to 200 Rooms (62 properties)	5,610,400	5,648,812	379,011	384,006	67,555	67,980	19.8	19.9
201 to 300 Rooms (68 properties)	8,540,639	8,528,743	586,366	567,752	68,656	66,569	20.1	19.5
301 to 500 Rooms (21 properties)	5,463,933	5,448,705	317,416	303,373	58,093	55,678	17.0	16.3
Over 500 Rooms (16 properties	13,637,061	13,637,061	884,446	889,583	64,856	64,671	19.0	19.1
All Properties	37,099,143	37,108,913	2,431,004	2,399,867	65,527	64,671	19.2	18.9

Table 4

Use of Fossil Fuels
(1981 versus 1980)
234 Hotels/Motels with Conventional Energy Systems

(By Size of Property)

	Total Sq Ft		Total (MM Btu)		Btu/Sq Ft/Yr		Decrease	
	1980	1981	1980	1981	1980	1981	1980	1981
Up to 150 Rooms (68 properties)	3,847,110	3,845,592	263,017	259,954	68,367	67,598	-1.1%	
151 to 200 Rooms (62 properties)	5,610,400	5,648,812	429,602	414,620	76,572	73,399	-4.1%	
201 to 300 Rooms (68 properties)	8,540,639	8,528,743	549,609	547,377	64,352	64,180	-0.2%	
301 to 500 Rooms (21 properties)	5,463,933	5,448,705	370,604	339,846	67,827	62,372	-8.0%	
Over 500 Rooms (16 properties)	13,637,061	13,637,061	1,278,530	1,167,329	93,754	85,600	-8.7%	
234 Properties	37,099,143	37,108,913	2,891,362	2,729,126	77,936	73,544	-5.6%	

Fossil fuels used included natural gas, fuel oil, purchased steam and propane. Natural gas represented 88% of the fossil fuel requirements.

ENERGY SOURCES

1980 and 1981

	1980		1981	
	Btu (Millions)	Percent	Btu (Millions)	Percent
Electricity	2,520,052	47.0%	2,529,807	48.0%
Fossil Fuels	2,891,362	53.0%	2,729,126	52.0%
Total	5,411,414	100.0%	5,258,933	100.0%
Fossil Fuels				
Natural Gas	2,466,798	85.3%	2,403,231	88.0%
Steam (Purchased)	377,132	13.0%	290,722	11.0%
Fuel Oil	40,180	1.4%	28,238	0.8%
Propane	7,252	0.3%	6,935	0.2%
Total	2,891,362	100.0%	2,729,126	100.0%

Energy Sources

The mix of energy requirements (electricity and fossil fuels) in 1981 by number of guest rooms of the 234 properties analyzed (Table 5) shows that the smaller properties (up to 150 rooms) used 50% electricity and 50% fossil fuel - mainly natural gas. The large properties (over 500 rooms) had a mix of 41% electricity and 59% fossil fuels. The average for all properties was 47% electricity, 53% fossil fuels.

Table 5

Energy Source of 234 Hotels/Motels
with
Conventional Energy Systems
1980 versus 1981

(By Size of Property)

	Percent Electricity			Percent Fossil Fuel		
	1980	vs	1981	1980	vs	1981
Up to 150 Rooms (68 properties)	50		50	50		50
151 to 200 Rooms (62 properties)	47		48	53		52
201 to 300 Rooms (68 properties)	52		51	48		49
301 to 500 Rooms (21 properties)	46		47	54		53
Over 500 Rooms (16 properties)	41		43	59		57
Average - All Properties	47		47	53		53

C. THE ENERGY REQUIREMENTS OF 27 ALL-ELECTRIC HOTELS/MOTELS

The 1981 report on the energy requirements of 261 hotels/motels included, as stated previously, a comparison of the energy use of 27 all-electric hotels for the years 1980 and 1981. The complete listing of the individual properties is contained in Appendix B.

The 27 all-electric properties ranged in size from 50 guest rooms to 360 guest rooms and were located in 14 states. Of the 27 all-electric properties included in this survey 17, or 63%, are located in the Atlantic coast states.

Table 6 is a listing of the 27 all-electric properties by state location. Energy use in 1981 of the properties surveyed ranged from 19.3 Kwh/sq ft in Texas to 45 Kwh/sq ft in Illinois. The average use of electricity for the 27 properties was 27.5 Kwh/sq ft.

Table 7 lists the 27 all-electric properties by size and indicates the following requirements for electricity.

Size	Kwh/Sq Ft/Yr 1980 vs 1981	
Up to 150 Rooms (19 properties)	32.3	30.1
Over 150 Rooms (8 properties)	28.1	26.2
Average - 27 properties	29.4	27.5

Table 6

All-Electric Hotels/Motels
Energy Use by State Location-1981

Location and No. of Properties	Total Sq Ft	Btu/Sq Ft/Yr	Kwh Per Sq Ft
South Carolina (5 properties)	85,540	69,020	20.2
North Carolina (1 property)	17,108	76,865	22.5
Virginia (6 properties)	102,648	76,017	22.3
Florida (2 properties)	34,216	88,818	26.0
Kentucky (2 properties)	91,925	69,981	26.8
Illinois (1 property)	19,116	153,589	45.0
Dist. of Columbia (2 properties)	189,713	86,900	25.5
Ohio (2 properties)	112,608	129,094	37.8
New York (1 property)	160,826	101,203	29.7
Missouri (1 property)	90,740	86,665	25.4
Indiana (1 property)	37,668	121,509	35.6
Texas (1 property)	82,984	65,952	19.3
Connecticut (1 property)	205,703	97,135	28.5
Idaho (1 property)	153,315	91,681	26.9
Total 27 Properties	1,384,110	93,880	27.5

Table 7

Energy Use
All-Electric Hotels/Motels
(Included in 1981 Energy Use Survey)

	Total Sq Ft	Electricity (MM Btu) 1980 vs 1981		Btu/Sq Ft/Yr 1980 vs 1981		Kwh/Sq Ft/Yr 1980 vs 1981	
Up to 150 Rooms (19 properties)	454,841	50,093	46,749	110,133	102,781	32.3	30.1
Over 150 Rooms (8 properties)	929,269	89,048	83,191	95,826	89,523	28.1	26.2
Total/Average (27 properties)	1,384,110	139,141	129,940	100,527	93,879	29.4	27.5

D. THE ENERGY REQUIREMENTS OF 261 HOTELS AND MOTELS (By Geographical Location)

Appendix C lists the 1981 versus the 1980 energy use data of 261 individual hotels and motels by geographical (state) location. Appendix C includes both hotels/motels with conventional energy systems (234 properties) and all-electric systems (27 properties). These data serve as the source for the following analyses based on location of hotel/motel properties.

For the purpose of this survey and analysis, six major geographical areas were used. The six areas include the following states.

Northeastern States

Maine
New Hampshire
Vermont
Massachusetts
Connecticut
Rhode Island
New York
New Jersey
Pennsylvania
Maryland
Delaware
District of Columbia

Midwestern States

Ohio
Indiana
Illinois
Wisconsin
Michigan
Minnesota
Iowa
Kansas
North Dakota
South Dakota
Nebraska
Missouri

Southeastern States

Kentucky
West Virginia
Virginia
Tennessee
North Carolina
South Carolina
Mississippi
Alabama
Georgia
Florida

South Central States

Oklahoma
Arkansas
Louisiana
Texas

Rocky Mountain States

Montana
Wyoming
Colorado
New Mexico
Arizona
Nevada
Utah
Idaho

Pacific Coast States

California
Oregon
Washington
Hawaii
Alaska

Summary Energy Requirements by Geographical Location

Table 8 is a summary of energy use in 1981 of 261 properties by regional location. The South Central region with 153,975 Btu/sq ft had the highest annual energy use, while the 111,719 Btu/sq ft average for the Pacific region locations was the lowest.

Region	Btu/sq ft/yr
Northeast (27 properties)	136,930
Southeast (85 properties)	149,134
Midwest (66 properties)	130,962
South Central (37 properties)	153,975
Rocky Mountain (17 properties)	127,667
Pacific Coast (31 properties)	111,719
Average - 261 properties	136,620

Table 8 also indicates that percentage-wise, on the basis of regional location, the distribution of the 261 properties is as follows:

Region	% of Total Properties	% of Total Sq Ft	% of Total Energy Use
Northeast	10	15	15
Southeast	32	20	20
Midwest	25	28	31
South Central	14	11	13
Rocky Mountain	7	11	10
Pacific Coast	12	15	11

Table 8

Summary of
Energy Use by Geographic Area
1981

261 Hotels/Motels

	Total Sq Ft	Total Energy (MM Btu) Elec	Fossil Fuel	Total	Btu/Sq Ft/Yr Elec	Fossil Fuel	Total
Northeast (27 properties)	5,757,029	338,141	450,168	788,309	58,735	78,194	136,929
Southeast (83 properties)	7,964,638	619,895	423,170	1,043,065	77,831	53,131	130,962
Midwest (66 properties)	10,943,694	608,115	1,023,960	1,632,075	55,568	93,566	149,134
South Central (37 properties)	4,401,372	389,723	287,980	677,703	88,546	65,429	153,975
Rocky Mountain (17 properties)	4,055,943	293,423	224,388	517,811	72,344	55,323	127,667
Pacific Coast (31 properties)	5,370,347	280,510	319,460	599,970	52,233	59,486	111,719
All Regions (261 Properties)	38,493,023	2,529,807	2,729,126	5,258,933	65,721	70,899	136,620

Use of Electricity by Region

Table 9 shows that the annual use of electricity of the 261 properties ranged from 15.3 Kwh/sq ft in the Pacific Coast Region to 25.9 Kwh/sq ft in the South Central Region. The average for all properties was 19.3 Kwh/sq ft (65,721 Btu/sq ft).

Region	Use of Electricity	
	Btu/sq ft	Kwh/sq ft
Northeast (27 properties)	58,375	17.2
Southeast (83 properties)	77,831	22.8
Midwest (66 properties)	55,568	16.3
South Central (37 properties)	88,546	25.9
Rocky Mountain (17 properties)	72,344	21.2
Pacific Coast (31 properties)	52,233	15.3
Average - 261 properties	65,721	19.3

Use of Fossil Fuels by Region

Table 10 indicates that the region with the highest annual requirement for fossil fuels was the Midwest with 93,566 Btu/sq ft, followed by the Northeast with 78,194 Btu/sq ft. The Southeast Region had the lowest requirement - 53,131 Btu/sq ft. The average for all properties was 70,889 Btu/sq ft.

Region	Use of Fossil Fuels	
	Btu/sq ft	Equivalent Therms Natural Gas/Sq Ft
Northeast (27 properties)	78,194	0.78
Southeast (83 properties)	53,131	0.53
Midwest (66 properties)	93,566	0.93
South Central (37 properties)	65,429	0.65
Rocky Mountain (17 properties)	55,323	0.55
Pacific Coast (31 properties)	59,486	0.59
Average-261 Properties	70,889	0.71

Table 9

Use of Electricity - 1981
261 Hotels/Motels

By Geographical Area

	Total Sq Ft	Btu's Electricity (Millions)	Btu's Sq Ft	Kwh Sq Ft
Northeast (27 properties)	5,757,029	338,141	58,735	17.2
Southeast (83 properties)	7,964,638	619,895	77,831	22.8
Midwest (66 properties)	10,943,694	608,115	55,568	16.3
South Central (37 properties)	4,401,372	389,723	88,546	25.9
Rocky Mountain (17 properties)	4,055,943	293,423	72,344	21.2
Pacific Coast (31 properties)	5,370,347	280,510	52,233	15.3
261 Properties	38,493,023	2,529,807	65,721	19.3

Table 10

Use of Fossil Fuels - 1981
261 Hotels/Motels

By Geographical Area

	Total Sq Ft	Btu's Fossil Fuels (Millions)	Btu's Sq Ft	Therms[1] Sq Ft
Northeast (27 properties)	5,757,029	450,168	78,194	.78
Southeast (83 properties)	7,964,638	423,170	53,131	.53
Midwest (66 properties)	10,943,694	1,023,960	93,566	.94
South Central (37 properties)	4,401,372	287,980	65,429	.65
Rocky Mountain (17 properties)	4,055,943	224,388	55,323	.55
Pacific Coast (31 properties)	5,370,347	319,460	59,486	.59
261 Properties	38,493,023	2,729,126	70,889	.71

Note:
1 Equivalent therms (100,000 Btu) of natural gas

Energy Sources

In Table 11, the Southeast is shown to have the highest annual requirement for electricity - (59%) and the lowest requirement for fossil fuels (41%). The Midwest properties had the lowest annual requirement for electricity (37%) and the highest requirement for fossil fuels (63%). The average for all properties was 48% electricity and 52% fossil fuels.

Table 11

Sources of Energy (1981)
261 Hotels/Motels

By Geographical Area

	Electricity		Fossil Fuels	
	Btu's (Millions)	% of Annual Use	Btu's (Millions)	% of Annual Use
Northeast (27 properties)	338,141	43	450,168	57
Southeast (83 properties)	619,895	59	423,170	41
Midwest (66 properties)	608,115	37	1,023,960	63
South Central (37 properties)	389,723	58	287,980	42
Rocky Mountain (17 properties)	293,423	57	224,388	43
Pacific Coast (31 properties)	280,510	47	319,460	53
261 Properties	2,529,807	48	2,729,126	52

II. A SURVEY OF THE DOMESTIC WATER USE OF 191 HOTELS/MOTELS - 1981

A. INTRODUCTION

As stated in the "Foreword" of this report, water management goes hand-in-hand with energy management. The availability of potable, domestic water, along with the increasing costs of constructing adequate facilities for disposal, are causing water to become more and more costly and could well be the hospitality industry's next "crisis".

The water use data indicates that water requirements per occupied room and per guest varies widely from one property to another and from one region to another. In addition to the use of water in the guest room, the domestic water requirements of kitchens, laundries, swimming pools, irrigation, etc., substantially affect the overall water use of a property.

B. WATER USE OF 191 HOTELS/MOTELS - 1981

Appendix D of this report contains water use data obtained from 191 hotels/motels located in 36 states. Whenever the information was available, water use is shown by (1) available room, (2) occupied room, and (3) per guest.

Appendix D indicates the following ranges (low/high) of water use per available room, occupied room and guest room for the various sizes of properties:

Size of Property	Range of Gallons of Water Used Per Available Room	Occupied Room	Guest
Less than 75 Rooms	69-173	N/A	48-143
76 to 150 Rooms	105-271	124-461	80-283
151 to 200 Rooms	126-296	134-395	105-178
201 to 300 Rooms	77-309	112-466	88-226
301 to 500 Rooms	80-323	171-511	172-250
Over 500 Rooms	98-270	133-474	113-364

D. WATER USE BY SEASON OF YEAR AT 32 HOTELS/MOTELS

Appendix E lists the water use by season of the year for 32 selected hotels/motels. Of the 32 properties surveyed, the season of high use (per occupied room) was summer for 17 properties, fall season for 11 properties and the spring season for 1 property. One property in Texas had similar high seasonal use per occupied room in both the spring and fall (184 gallons), while a property in Colorado had the same high use per occupied room for both winter and spring (255 gallons). And a property (630 rooms) in Hawaii had very similar water use per occupied room year-round as follows:

Winter - 312 gallons
Spring - 311 gallons
Summer - 310 gallons
Fall - 287 gallons

For the purposes of this survey, the seasons of the year are considered to be as follows:

Winter - December, January, February
Spring - March, April, May
Summer - June, July, August
Fall - September, October, November

* * *

APPENDICES

APPENDIX A

Annual Energy Requirements
of
234 Hotels/Motels with Conventional Energy Systems
1981 versus 1980

By Size of Property

Appendix A-1: Up to 150 Rooms (68 properties)

Appendix A-2: 151 to 200 Rooms (61 properties)

Appendix A-3: 201 to 300 Rooms (68 properties)

Appendix A-4: 301 to 500 Rooms (21 properties)

Appendix A-5: Over 500 Rooms (16 properties)

Appendix A-1

ANNUAL ENERGY REQUIREMENTS - 1981
With Comparison to 1980 Energy Use

68 Selected Properties
Up to 150 Rooms

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft)		Electricity (Btu/Sq Ft)		Fossil Fuel (Btu/Sq Ft)		Total (Btu/Sq Ft)	
		1980	1981	1980	1981	1980	1981	1980	1981
Arizona	70,065	26.7	25.6	91,244	87,490	48,612	51,654	139,856	139,142
Arizona	57,387	18.4	20.5	62,854	69,842	70,626	71,724	133,480	141,566
Arizona	57,714	17.4	17.8	59,275	60,661	98,277	81,505	157,552	142,166
Arkansas	48,904	26.4	23.9	90,218	81,466	75,453	80,934	165,671	162,400
California	44,720	21.4	19.6	72,965	66,927	109,325	106,306	182,290	173,233
California	70,883	13.7	12.9	46,273	44,073	50,464	45,610	96,737	89,683
California	63,898	17.8	18.3	60,644	62,443	46,229	48,718	106,873	111,161
California	66,665	15.1	16.6	51,481	56,761	41,476	43,306	92,957	100,069
California	59,732	14.5	16.6	49,538	56,586	48,282	54,945	97,820	111,531
California	76,227	11.2	11.6	38,372	39,447	40,196	36,195	78,568	75,642
Florida	59,840	23.3	22.9	79,545	77,991	41,377	49,499	120,922	127,490
Florida	55,448	25.9	26.7	88,353	91,239	43,248	53,906	131,601	145,145
Florida	59,247	22.3	19.9	76,190	68,054	12,692	135,636	88,882	203,690
Florida	51,682	34.9	31.7	119,345	108,123	8,107	10,003	127,452	118,126
Illinois	25,836	31.3	28.6	106,789	97,577	68,238	72,341	175,027	169,918
Kentucky	37,928	31.3	29.7	106,729	101,403	84,054	83,345	190,783	184,798
Kentucky	55,151	23.3	23.3	79,612	79,618	59,829	59,962	139,441	139,580
Maryland	31,956	16.5	15.5	56,390	52,791	123,670	120,353	180,060	173,144
Maryland	54,274	18.4	16.8	62,866	57,375	113,350	109,703	176,216	167,078
Massachusetts	59,516	21.6	20.9	73,560	71,258	83,641	78,231	157,201	149,489
Michigan	77,110	18.1	17.7	61,678	60,368	99,416	77,098	161,094	137,466
Minnesota	69,189	14.5	14.0	71,456	47,955	110,625	99,091	182,081	147,046
Minnesota	61,020	16.6	15.6	56,572	53,064	175,336	160,669	231,907	213,733
New Hampshire	103,692	7.9	7.6	27,002	25,769	86,401	73,284	113,403	99,053

Appendix A-1

(Up to 150 Rooms)
(Cont'd)

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft) 1980	Electricity (Kwh/Sq Ft) 1981	Electricity (Btu/Sq Ft) 1980	Electricity (Btu/Sq Ft) 1981	Fossil Fuel (Btu/Sq Ft) 1980	Fossil Fuel (Btu/Sq Ft) 1981	Total (Btu/Sq Ft) 1980	Total (Btu/Sq Ft) 1981
New Mexico	39,618	12.8	11.6	43,566	39,553	41,193	44,121	84,759	83,674
New York	84,484	14.9	14.7	50,945	50,211	67,740	92,029	118,685	142,240
North Carolina	53,050	18.6	19.2	63,506	65,580	123,808	126,842	187,314	192,422
Ohio	54,735	23.6	19.1	80,460	65,278	68,658	65,534	149,118	130,812
Ohio	48,860	25.4	23.0	86,738	78,612	79,164	63,692	165,902	142,304
Ohio	57,200	29.6	28.7	101,136	97,902	46,748	46,031	147,884	143,933
Ohio	61,575	18.1	16.6	61,632	56,879	71,724	69,168	133,366	125,847
Ohio	53,818	12.9	12.6	43,851	42,848	169,758	150,817	213,609	193,745
Ohio	55,262	19.1	17.7	65,271	60,439	135,627	138,757	200,898	199,196
Ohio	86,139	11.2	10.6	38,194	36,035	115,023	107,245	153,217	143,280
Ohio	75,884	23.1	23.2	78,725	79,042	91,759	72,136	170,484	151,178
Pennsylvania	72,713	21.0	20.5	71,719	69,987	61,118	65,958	132,837	135,945
South Carolina	51,200	38.5	35.8	131,367	122,226	42,578	43,554	173,945	165,780
South Carolina	88,321	19.4	18.4	66,349	62,635	40,432	34,578	106,781	97,213
Tennessee	62,950	22.1	19.1	75,425	65,242	60,635	50,230	136,060	115,472
Tennessee	41,819	23.3	21.9	79,366	74,679	44,932	43,999	124,298	118,678
Tennessee	55,887	24.8	24.1	84,707	82,327	79,750	73,273	164,457	155,600
Tennessee	68,612	17.8	17.4	60,689	59,290	39,002	36,714	99,691	96,004
Tennessee	54,567	19.4	19.6	66,342	67,037	127,873	108,839	194,215	175,876
Tennessee	55,162	19.5	17.5	66,658	59,624	108,360	97,549	175,048	157,173
Texas	37,375	19.9	18.7	67,987	63,652	53,913	51,157	121,900	114,809
Texas	37,375	20.2	18.2	68,896	62,127	46,475	40,615	115,371	102,742
Texas	53,804	26.5	26.0	90,346	88,599	56,836	46,261	147,182	134,860
Texas	38,870	18.2	16.0	76,434	56,519	44,765	48,495	121,199	105,094
Texas	38,870	15.2	15.3	51,994	52,045	37,921	41,883	89,915	93,928
Texas	38,870	16.9	22.0	57,499	75,225	37,201	32,287	94,700	107,512
Texas	39,618	30.4	27.7	103,741	94,553	14,412	11,863	118,153	106,416
Texas	91,602	21.1	21.5	72,062	73,372	54,977	53,361	127,039	126,733

Appendix A-1

(Up to 150 Rooms)
(Cont'd)

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft) 1980	Electricity (Kwh/Sq Ft) 1981	Electricity (Btu/Sq Ft) 1980	Electricity (Btu/Sq Ft) 1981	Fossil Fuel (Btu/Sq Ft) 1980	Fossil Fuel (Btu/Sq Ft) 1981	Total (Btu/Sq Ft) 1980	Total (Btu/Sq Ft) 1981
Texas	45,598	16.1	14.5	54,871	49,410	37,414	32,523	92,285	81,933
Texas	38,123	19.1	16.7	65,075	56,868	39,219	50,442	104,294	107,310
Texas	37,001	17.5	19.2	59,836	65,485	45,756	41,323	105,592	106,808
Texas	45,598	17.5	14.9	59,712	51,011	37,156	39,410	96,868	90,421
Texas	47,466	17.9	19.0	60,991	64,867	19,003	18,118	79,994	82,985
Texas	48,214	17.4	20.4	59,423	69,876	62,927	73,360	122,350	143,236
Utah	49,950	18.0	17.8	61,401	60,842	44,564	42,122	105,965	102,964
Vriginia	62,584	31.4	31.0	108,079	105,794	639	176	108,718	105,970
Washington	30,545	21.0	20.8	71,665	71,103	139,690	112,228	211,355	183,336
Washington	65,553	11.0	10.0	37,420	34,293	85,763	64,177	123,183	98,470
W. Virginia	47,860	24.0	22.9	81,989	78,124	64,208	57,584	146,197	135,708
W. Virginia	48,860	32.7	30.3	111,597	103,274	74,506	79,329	186,103	182,603
W. Virginia	56,201	20.8	20.6	70,817	70,497	60,871	68,415	131,688	138,912
W. Virginia	65,924	21.3	21.6	72,735	73,736	113,949	118,621	186,684	192,357
Wisconsin	77,000	22.9	23.9	85,909	81,571	49,442	39,091	135,351	120,662
Wisconsin	62,791	16.1	15.4	54,870	52,396	81,822	70,631	136,992	123,027

Appendix A-2

ANNUAL ENERGY REQUIREMENTS - 1981
With Comparison to 1980 Energy Use

61 Selected Properties
151 - 200 Rooms

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft)		Electricity (Btu/Sq Ft)		Fossil Fuel (Btu/Sq Ft)		Total (Btu/Sq Ft)	
		1980	1981	1980	1981	1980	1981	1980	1981
Alabama	84,214	29.1	27.0	99,377	92,110	36,764	36,431	136,141	128,541
Alabama	72,745	27.9	25.7	95,305	87,827	72,761	72,472	168,066	160,299
Arizona	75,353	19.8	19.8	67,615	67,721	100,832	68,265	168,447	135,986
California	143,081	15.2	15.0	51,887	51,404	47,741	45,066	99,628	96,470
Califonria	101,006	18.2	17.8	62,220	60,778	11,978	111,617	174,198	172,395
California	77,309	12.6	18.0	43,835	61,571	83,977	85,786	107,012	147,357
California	92,496	14.4	24.2	83,225	82,435	122,059	122,059	205,284	204,494
Colorado	94,846	13.1	13.1	44,524	44,567	100,036	76,651	144,560	121,218
Colorado	183,000	7.8	7.3	26,546	24,814	80,842	65,929	107,388	90,743
Florida	101,023	21.4	22.5	72,646	16,646	38,605	38,377	111,459	115,023
Florida	66,872	27.4	24.2	93,402	82,710	56,691	58,859	150,093	141,569
Florida	77,706	38.4	35.4	110,661	120,914	11,016	10,270	121,677	131,184
Georgia	136,526	17.1	17.3	58,502	59,095	42,197	44,350	100,899	103,445
Illinois	110,890	19.5	15.6	66,560	53,133	93,359	72,730	159,919	125,863
Indiana	80,347	19.8	19.1	67,470	65,192	81,994	78,273	149,464	143,465
Indiana	83,216	13.5	12.8	46,109	43,681	120,085	110,772	166,194	154,453
Kentucky	66,000	15.5	21.9	52,727	74,636	114,849	107,530	167,576	182,166
Kentucky	177,949	22.1	21.0	75,549	71,672	30,144	28,795	105,693	100,467
Louisiana	83,888	25.0	31.7	85,374	108,204	54,493	68,198	139,867	176,402
Louisiana	100,939	29.8	28.4	101,745	96,910	49,138	53,488	150,883	150,398
Maryland	55,170	18.2	17.9	62,008	60,975	137,176	72,576	199,184	133,551
Michigan	88,374	18.2	18.0	62,032	61,443	98,648	75,033	140,675	136,476
Michigan	99,792		13.2	48,862	45,064	92,703	74,946	141,565	120,010
Michigan	59,486	27.1	42.0	92,307	143,361	200,098	233,332	292,405	376,693

Appendix A-2

151 - 200 Rooms
(Cont'd)

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft) 1980	Electricity (Kwh/Sq Ft) 1981	Electricity (Btu/Sq Ft) 1980	Electricity (Btu/Sq Ft) 1981	Fossil Fuel (Btu/Sq Ft) 1980	Fossil Fuel (Btu/Sq Ft) 1981	Total (Btu/Sq Ft) 1980	Total (Btu/Sq Ft) 1981
Minnesota	84,143	20.3	21.4	69,263	73,077	54,550	81,529	123,813	154,606
Minnesota	82,386	9.5	9.5	32,453	32,615	39,027	133,676	71,480	166,291
Minnesota	183,000	12.1	11.6	41,393	39,661	191,208	112,688	232,601	152,349
Minnesota	104,119	23.0	22.5	81,570	76,748	96,572	86,852	178,142	163,600
Minnesota	107,574	10.9	10.7	37,020	36,543	94,582	90,421	131,602	126,964
Mississippi	84,250	22.3	20.0	67,217	68,332	74,242	67,371	141,459	135,703
Missouri	94,780	19.1	16.9	65,299	47,035	81,546	69,593	146,845	116,628
Nevada	66,357	12.4	11.3	42,266	38,700	101,486	68,614	143,753	107,314
New York	80,998	20.8	20.9	71,113	71,434	37,605	34,902	108,718	106,336
New York	74,596	10.7	29.7	36,597	101,198	117,915	124,323	154,512	225,521
New York	83,871	27.5	26.9	93,882	91,963	37,737	32,120	131,619	124,083
North Carolina	84,561	34.3	31.3	117,146	106,846	40,220	36,908	157,366	143,754
Ohio	74,238	24.5	21.6	83,744	73,547	57,060	42,754	140,804	116,301
Ohio	88,838	22.4	20.7	76,656	70,747	54,931	56,451	131,587	127,198
Oklahoma	86,314	24.0	21.8	82,003	74,414	69,224	60,002	151,227	134,416
South Carolina	58,266	20.2	20.3	68,942	69,286	128,343	125,768	197,285	195,054
South Carolina	88,789	28.5	26.4	97,309	90,011	30,871	24,688	128,180	114,699
South Carolina	99,358	17.8	21.6	60,962	73,653	68,764	78,081	129,726	151,734
Tennessee	87,148	22.7	18.7	77,734	63,708	95,743	75,985	173,477	139,693
Tennessee	71,978	26.6	24.2	90,611	82,609	67,590	80,052	158,201	162,661
Tennessee	101,606	16.2	17.1	55,284	58,264	74,160	71,787	129,444	130,051
Tennessee	90,838	21.6	20.0	73,570	68,242	58,423	55,615	131,993	123,857
Tennessee	77,406	29.3	24.5	100,050	83,417	46,836	44,428	146,886	127,845
Texas	62,707	25.36	23.4	86,577	79,939	54,475	58,702	142,052	138,661

Appendix A-2

151 - 200 Rooms
(Cont'd)

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft) 1980	Electricity (Kwh/Sq Ft) 1981	Electricity (Btu/Sq Ft) 1980	Electricity (Btu/Sq Ft) 1981	Fossil Fuel (Btu/Sq Ft) 1980	Fossil Fuel (Btu/Sq Ft) 1981	Total (Btu/Sq Ft) 1980	Total (Btu/Sq Ft) 1981
Texas	90,604	20.2	19.8	68,926	67,580	64,467	62,790	133,393	130,370
Texas	59,897	42.0	37.3	143,413	127,168	40,553	43,324	183,966	170,492
Texas	73,907	21.1	22.5	72,077	76,894	89,463	83,876	161,540	160,770
Texas	78,412	20.5	19.5	69,892	66,520	72,841	68,255	142,733	134,775
Texas	123,926	22.1	19.9	75,432	67,863	43,453	42,719	118,885	110,582
Texas	113,282	17.5	20.9	59,859	71,203	58,632	77,126	118,491	148,329
Utah	81,378	15.1	15.8	51,649	53,835	104,204	86,620	155,853	140,455
Utah	80,649	12.7	12.8	43,224	43,547	155,451	117,571	198,676	161,118
Virginia	64,032	22.6	21.0	77,177	71,841	88,957	76,578	166,134	148,419
Vermont	135,000	23.8	21.4	81,348	72,955	53,844	54,978	135,193	127,933
West Virginia	77,377	20.6	21.0	70,245	70,499	52,485	62,590	122,730	133,089
Wisconsin	104,398	9.2	13.6	34,570	46,562	91,266	127,522	125,836	174,084
Wisconsin	134,601	19.3	19.4	65,928	66,270	130,007	119,397	195,935	185,667

Appendix A-3

ANNUAL ENERGY REQUIREMENTS - 1981
With Comparison to 1980 Energy Use

68 Selected Properties
201 - 300 Rooms

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft)		Electricity (Btu/Sq Ft)		Fossil Fuel (Btu/Sq Ft)		Total (Btu/Sq Ft)	
		1980	1981	1980	1981	1980	1981	1980	1981
Alabama	87,058	22.3	21.2	76,064	72,170	57,984	53,998	134,048	126,168
Alabama	130,208	18.1	19.4	61,770	66,302	54,168	56,317	115,938	122,619
Alabama	101,157	21.7	19.3	73,895	65,897	40,590	39,829	114,485	105,726
Alaska	137,104	16.6	15.6	56,505	53,158	98,647	93,651	155,152	146,809
Arkansas	111,997	23.4	24.1	80,001	82,332	67,717	67,064	147,718	149,396
Arkansas	148,003	18.9	16.9	64,458	57,864	47,188	53,080	111,646	110,944
California	109,325	13.7	14.9	46,778	50,940	37,247	35,262	84,025	86,202
California	83,959	15.2	15.4	51,990	52,560	69,617	58,411	121,607	110,971
California	118,792	16.8	16.8	57,361	57,260	61,032	60,450	118,393	117,710
California	104,280	15.6	15.8	53,212	53,922	45,791	46,835	99,003	100,757
California	144,716	27.4	30.5	93,321	104,114	60,788	62,467	154,109	166,581
California	152,060	15.2	15.9	51,730	54,235	63,461	62,567	115,191	116,802
Delaware	179,600	16.6	16.1	56,726	54,905	30,646	30,095	87,372	85,000
Florida	119,548	32.2	27.8	109,755	94,799	52,147	52,054	161,902	146,853
Florida	107,709	32.3	32.6	110,188	111,355	39,540	40,377	149,728	151,732
Florida	129,364	22.5	31.9	76,636	108,817	56,940	51,506	133,576	160,323
Florida	145,400	23.2	22.2	79,153	75,817	69,352	71,300	148,508	147,117
Florida	148,592	27.4	24.3	93,336	83,073	36,536	38,326	129,872	121,399
Florida	107,291	22.3	21.6	76,036	73,743	54,581	53,490	130,617	127,233
Hawaii	90,318	32.3	27.9	110,089	95,263	31,101	34,046	141,190	129,309

Appendix A-3

201 - 300 Rooms
(Cont'd)

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft) 1980	Electricity (Kwh/Sq Ft) 1981	Electricity (Btu/Sq Ft) 1980	Electricity (Btu/Sq Ft) 1981	Fossil Fuel (Btu/Sq Ft) 1980	Fossil Fuel (Btu/Sq Ft) 1981	Total (Btu/Sq Ft) 1980	Total (Btu/Sq Ft) 1981
Illinois	103,628	28.0	23.9	95,524	81,706	82,497	97,840	178,021	179,546
Illinois	134,269	22.5	17.8	76,644	60,825	72,697	68,162	149,341	128,987
Illinois	146,701	18.9	17.0	64,487	58,132	81,547	83,714	145,984	141,846
Illinois	121,223	20.5	17.5	69,780	59,869	64,939	45,429	134,719	105,298
Indiana	129,117	17.7	19.5	60,456	66,428	100,321	89,415	160,777	155,843
Indian	158,834	21.2	20.4	72,345	69,777	73,587	68,524	145,932	138,301
Louisiana	77,884	29.0	29.7	99,095	101,189	52,117	51,731	151,212	152,920
Louisiana	127,990	27.1	28.3	92,632	96,687	53,934	60,809	146,566	157,496
Maryland	75,600	19.0	19.5	64,709	66,429	162,764	128,373	229,473	194,802
Maryland	113,043	19.5	13.4	66,453	45,867	114,558	110,250	181,011	156,117
Massachusetts	201,230	21.8	21.0	74,402	71,619	86,170	82,488	82,312	31,011
Massachusetts	160,885	20.6	21.3	70,202	72,835	74,398	60,086	144,600	132,921
Michigan	114,813	20.5	11.6	70,095	66,900	96,113	97,414	166,209	164,319
Michigan	123,985	17.1	14.9	58,451	50,990	65,507	63,677	123,958	114,667
Minnesota	132,401	44.6	29.1	152,189	99,312	17,862	53,444	170,051	152,756
Mississippi	93,531	31.1	32.1	105,944	109,525	54,275	55,928	160,219	165,453
Mississippi	118,200	24.8	26.7	84,645	91,252	75,034	76,511	159,679	167,843
Missouri	124,410	13.1	11.9	44,819	40,608	71,964	57,085	116,783	97,693
Missouri	207,934	14.9	12.8	50,717	30,896	74,460	66,607	125,179	97,503
Missouri	261,718	16.8	14.8	57,295	50,344	66,648	62,980	123,943	113,324
Missouri	90,022	16.1	14.9	54,876	50,954	164,030	66,550	158,906	117,504
Missouri	90,964	13.9	14.1	47,392	48,063	126,478	71,545	173,870	119,608
Nevada	95,689	17.2	17.6	58,806	60,153	35,886	37,799	94,692	97,952
Nevada	152,763	14.0	13.2	47,780	45,220	54,064	49,141	101,847	94,561

Appendix A-3

201 - 300 Rooms
(Cont'd)

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft) 1980	Electricity (Kwh/Sq Ft) 1981	Electricity (Btu/Sq Ft) 1980	Electricity (Btu/Sq Ft) 1981	Fossil Fuel (Btu/Sq Ft) 1980	Fossil Fuel (Btu/Sq Ft) 1981	Total (Btu/Sq Ft) 1980	Total (Btu/Sq Ft) 1981
New Mexico	146,224	15.0	15.7	51,273	53,575	53,593	51,612	104,866	105,187
New York	113,170	29.2	25.8	99,744	88,186	17,946	29,425	117,690	117,611
New York	124,483	17.9	17.6	61,109	60,072	64,707	72,379	125,816	132,451
Ohio	109,362	18.9	19.1	64,620	65,269	99,194	65,535	163,814	130,804
Ohio	120,668	15.5	14.2	52,781	48,364	80,593	72,397	135,374	120,761
Ohio	126,902	14.7	14.5	50,212	49,361	93,040	90,842	143,252	140,203
Ohio	95,278	23.3	19.5	79,620	66,531	62,868	63,551	142,488	130,082
Ohio	144,157	15.2	14.5	51,978	49,495	49,206	38,971	111,184	88,466
Pennsylvania	156,211	11.9	10.9	40,833	37,072	94,983	99,570	135,816	136,642
South Carolina	83,268	28.8	27.7	98,277	94,406	67,225	64,262	165,502	158,668
Tennessee	92,772	20.8	21.5	71,120	73,513	69,213	76,877	140,333	150,390
Tennessee	84,557	25.7	23.5	87,633	80,088	72,366	67,327	159,999	147,415
Tennessee	95,738	26.7	23.7	90,977	80,772	57,658	53,918	148,635	134,690
Tennessee	121,559	16.2	15.3	55,268	52,287	52,153	53,793	107,421	106,080
Tennessee	121,400	14.9	14.5	50,733	49,539	46,433	44,687	97,166	94,226
Tennessee	92,750	27.4	26.4	93,509	90,005	30,351	31,030	123,860	121,035
Tennessee	122,588	19.7	17.9	67,119	60,985	44,792	43,830	111,911	104,815
Tennessee	138,981	22.6	20.1	77,208	68,556	37,786	39,948	114,994	108,504
Tennessee	148,482	24.1	23.2	82,138	79,292	73,544	59,513	155,682	138,805
Texas	88,186	23.8	24.2	81,249	82,462	71,156	72,619	152,405	155,081
Texas	132,168	15.7	16.2	53,606	55,187	47,712	38,035	101,318	93,222
Texas	171,205	16.9	17.0	57,946	57,895	80,794	72,177	138,740	130,072
Washington	124,175	11.5	11.3	39,090	38,615	76,054	81,345	115,144	119,960
West Virginia	161,144	19.1	19.3	65,035	65,817	178,970	176,504	244,005	242,381

Appendix A-4

ANNUAL ENERGY REQUIREMENTS - 1981
With Comparison to 1980 Energy Use

21 Selected Properties
301 to 500 Rooms

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft) 1980	Electricity (Kwh/Sq Ft) 1981	Electricity (Btu/Sq Ft) 1980	Electricity (Btu/Sq Ft) 1981	Fossil Fuel (Btu/Sq Ft) 1980	Fossil Fuel (Btu/Sq Ft) 1981	Total (Btu/Sq Ft) 1980	Total (Btu/Sq Ft) 1981
California	195,058	8.4	12.3	28,656	42,054	42,431	58,634	71,087	100,688
California	256,608	8.5	7.6	29,074	26,055	48,506	45,552	77,581	71,607
California	300,434	11.2	10.9	38,254	37,349	70,711	66,391	108,965	103,740
California	192,812	18.0	17.6	61,137	60,053	17,494	16,591	78,631	76,644
Florida	133,160	21.5	21.4	73,265	72,912	50,982	48,878	124,247	121,790
Florida	188,697	29.3	25.6	99,805	87,241	40,128	43,445	139,933	130,686
Hawaii	151,341	15.1	10.4	51,513	35,621	816	35,079	52,329	70,700
Illinois	183,221	30.9	19.4	105,386	66,357	21,865	7,668	119,331	74,025
Illinois	435,620	20.2	18.0	68,843	61,319	24,945	26,619	93,788	87,938
Minnesota	265,000	14.9	14.4	50,808	49,275	146,332	149,807	197,140	199,082
Minnesota	537,318	17.6	17.3	60,079	58,982	104,873	91,988	164,952	150,070
Minnesota	433,000	11.1	11.2	37,902	38,069	54,673	56,152	92,575	94,221
New York	322,000	18.8	17.9	64,065	60,907	69,364	10,270	133,429	71,177
Ohio	165,974	24.7	21.9	84,150	74,632	78,888	76,886	163,038	151,518
Ohio	317,000	17.1	16.6	58,356	56,770	115,710	111,319	174,066	168,089
Ohio	263,400	18.7	17.6	63,736	60,042	116,450	111,868	180,186	171,910
Oregon	304,965	15.9	15.8	54,265	53,941	78,308	68,601	132,573	122,542
Pennsylvania	322,295	18.3	16.5	62,376	56,395	54,517	52,731	116,893	109,126
Tennessee	144,546	22.6	19.1	77,089	65,363	65,577	65,404	142,666	130,767
Texas	132,400	16.6	16.4	56,677	55,793	38,021	40,340	94,698	96,133
Texas	203,855	24.2	24.0	82,654	82,171	73,061	66,655	155,715	148,826

Appendix A-5

ANNUAL ENERGY REQUIREMENTS - 1981
With Comparison to 1979 Energy Use

16 Selected Properties
Over 500 Rooms

Location (State)	Property Size (Sq Ft)	Electricity (Kwh/Sq Ft) 1980	Electricity (Kwh/Sq Ft) 1981	Electricity (Btu/Sq Ft) 1980	Electricity (Btu/Sq Ft) 1981	Fossil Fuel (Btu/Sq Ft) 1980	Fossil Fuel (Btu/Sq Ft) 1981	Total (Btu/Sq Ft) 1980	Total (Btu/Sq Ft) 1981
California	257,855	18.4	17.0	62,736	58,001	54,659	57,796	117,395	115,797
California	334,804	7.6	11.8	26,018	40,190	34,847	46,971	60,865	87,161
California	1,186,000	14.4	13.5	49,247	45,976	60,803	63,616	110,050	109,592
Georgia	1,170,600	25.0	25.5	85,209	87,157	40,873	41,110	126,082	128,267
Hawaii	233,626	25.3	26.3	86,313	89,677	48,539	51,634	134,852	141,311
Illinois	314,692	19.2	20.0	65,358	68,325	28,483	49,400	93,841	117,725
Illinois	1,750,000	11.4	10.9	39,976	37,251	131,567	119,279	170,643	156,530
Illinois	628,350	16.7	16.5	57,054	56,449	177,339	175,402	234,393	231,851
Louisiana	969,699	33.6	32.6	114,769	111,423	50,437	51,188	165,206	162,611
Massachusetts	970,000	14.2	14.2	48,576	48,411	166,759	146,752	215,335	195,163
Minnesota	407,000	13.2	11.1	45,079	37,835	336,801	197,982	381,880	235,817
Nevada	263,274	18.1	18.0	61,715	35,765	38,955	32,855	100,670	68,620
Nevada	2,388,361	23.2	24.5	79,311	83,761	62,357	56,171	141,668	139,932
New York	1,626,000	13.9	13.7	47,295	46,690	99,255	89,136	146,550	135,826
Tennessee	543,017	15.2	14.6	51,814	49,829	40,875	39,724	92,689	89,553
Texas	593,807	34.0	35.3	115,959	120,327	130,488	140,566	246,447	260,893

APPENDIX B

Annual Energy Requirements
of
27 All-Electric Hotels/Motels
1981 versus 1980

By Size of Property

Appendix B-1: Up to 150 Rooms (19 properties)

Appendix B-2: Over 150 Rooms (8 properties)

Appendix B-1

Energy Use
All-Electric Hotels/Motels
(Included in 1981 Energy Use Survey)

Up to 150 Rooms	Sq Ft	Electricity (MM Btu) 1980	Electricity (MM Btu) 1981	Btu/Sq Ft/Yr 1980	Btu/Sq Ft/Yr 1981	Kwh/Sq Ft/Yr 1980	Kwh/Sq Ft/Yr 1981
Dist. of Columbia	65,375	8,083	7,339	123,636	112,260	36.2	32.9
Florida	17,108	1,233	1,382	72,072	80,781	21.1	23.7
Florida	17,108	1,544	1,659	90,250	96,972	26.5	28.4
Illinois	19,116	2,979	2,936	155,838	153,589	45.7	45.0
Kentucky	18,230	2,769	2,587	151,892	141,909	44.5	41.6
North Carolina	17,108	1,346	1,315	78,677	76,865	23.1	22.5
Ohio	95,500	14,623	12,816	153,120	134,197	47.3	39.9
Ohio	17,108	2,059	1,721	120,353	100,596	35.3	29.3
South Carolina	17,108	1,798	1,555	105,097	90,893	30.8	26.6
South Carolina	17,108	1,710	1,583	99,953	92,530	29.3	27.1
South Carolina	17,108	1,274	1,592	74,468	93,056	21.8	27.3
South Carolina	17,108	1,713	1,037	100,129	60,675	29.3	17.8
South Carolina	17,108	1,207	1,426	70,552	83,353	20.7	24.4
Virginia	17,108	1,378	1,307	80,547	76,397	23.6	22.4
Virginia	17,108	1,064	1,071	62,193	62,602	18.2	18.3
Virginia	17,108	1,240	1,282	72,481	74,936	21.2	22.0
Virginia	17,108	1,275	1,437	74,527	83,996	21.8	24.6
Virginia	17,108	1,352	1,325	79,027	77,449	23.2	22.7
Virginia	17,108	1,446	1,381	84,522	80,722	24.8	23.7
Totals/Averages- 19 Properties	454,814	50,093	46,749	110,133	102,781	32.3	30.1

Appendix B-2

Energy Use
All-Electric Hotels/Motels
(Included in 1981 Energy Use Survey)

Over 150 Rooms	Sq Ft	Electricity (MM Btu) 1980	Electricity (MM Btu) 1981	Btu/Sq Ft/Yr 1980	Btu/Sq Ft/Yr 1981	Kwh/Sq Ft/Yr 1980	Kwh/Sq Ft/Yr 1981
Connecticut	205,703	20,550	19,981	99,901	97,135	29.3	28.5
Dist. of Columbia	124,338	12,886	9,147	103,627	73,566	30.4	21.6
Idaho	153,315	14,969	14,056	97,636	91,681	28.6	26.9
Indiana	37,668	4,676	4,577	124,137	121,509	36.4	35.6
Kentucky	73,695	6,154	5,817	83,506	78,933	24.5	23.1
Missouri	90,740	8,379	7,864	92,341	86,665	27.1	25.4
New York	160,826	15,628	16,276	97,173	101,203	28.5	29.7
Texas	82,984	5,806	5,473	69,965	65,952	20.5	19.3
Totals/Averages- 8 Properties	929,269	89,048	83,191	95,826	89,523	28.1	26.2

APPENDIX C

Annual Energy Requirements - 1981
of
261 Hotels/Motels
(Conventional Energy Systems and All-Electric)

By Geographical Location

Appendix C-1: Northeastern U.S. (27 properties)

Appendix C-2: Midwestern U.S. (66 properties)

Appendix C-3: Southeastern U.S. (83 properties)

Appendix C-4: South Central U.S. (37 properties)

Appendix C-5: Rocky Mountain States (17 properties)

Appendix C-6: Pacific Coast States (31 properties)

Appendix C-1

Annual Energy Requirements (1981)
27 Hotels/Motels

Northeastern U.S.

State	Sq Ft	Btu/Elec (Millions)	Btu/Fossil (Millions)	Total Btu's (Millions)	Btu/Sq Ft
Connecticut	205,703	19,981	--	15,266	35,000
Delaware	179,600	9,861	5,405	19,981	97,135
Dist. of Columbia	65,375	7,339	--	7,339	112,260
Dist. of Columbia	124,338	9,147	--	9,147	73,566
Maryland	31,956	1,687	3,846	5,533	173,144
Maryland	54,274	3,114	5,954	9,068	167,068
Maryland	55,170	3,364	4,004	7,368	133,551
Maryland	75,600	5,002	9,705	14,707	194,537
Maryland	113,043	5,185	12,463	17,648	156,117
Massachusetts	59,516	4,241	4,656	8,897	149,489
Massachusetts	160,885	11,718	9,667	21,385	132,921
Massachusetts	970,000	46,959	142,350	189,309	195,163
Massachusetts	201,230	14,412	16,599	31,011	154,107
New Hampshire	103,692	2,672	7,599	10,271	90,053
New York	84,484	4,242	7,775	12,017	142,240
New York	80,998	5,786	2,827	8,613	106,336
New York	74,596	7,549	9,274	16,823	225,521
New York	83,871	7,713	2,694	10,407	124,083
New York	113,170	9,980	3,330	13,310	117,611
New York	124,483	7,478	9,010	16,488	132,451
New York	160,826	16,276	--	16,216	101,203
New York	322,000	19,612	3,307	22,919	71,177
New York	1,626,000	75,918	144,936	220,854	135,826
Pennsylvania	72,713	5,089	4,796	9,885	135,945
Pennsylvania	156,211	5,791	15,554	21,345	136,642
Pennsylvania	322,295	18,176	16,995	35,171	109,127
Vermont	135,000	9,849	7,422	17,271	127,933
Total/Average-27 Properties	5,751,029	338,141	450,168	788,309	136,930

Appendix C-2

Annual Energy Requirements (1981)
66 Hotels/Motels

Midwestern U.S.

State	Sq Ft	Btu/Elec (Millions)	Btu/Fossil (Millions)	Total Btu's (Millions)	Btu/Sq Ft
Illinois	25,836	2,521	1,869	4,390	169,918
Illinois	103,628	8,467	10,139	18,606	179,546
Illinois	110,890	5,892	8,065	13,957	125,863
Illinois	146,701	8,528	12,281	20,809	141,846
Illinois	134,269	8,167	9,152	17,319	128,987
Illinois	628,350	35,850	111,431	147,281	234,393
Illinois	121,223	7,257	5,507	12,764	105,293
Illinois	183,221	12,158	1,405	13,563	74,025
Illinois	435,620	26,712	11,596	38,308	87,939
Illinois	19,116	2,936	--	2,936	153,580
Illinois	314,692	21,501	15,546	37,047	117,725
Illinois	1,750,000	65,189	208,739	273,928	156,530
Indiana	158,834	11,083	10,884	21,967	138,302
Indiana	80,347	5,238	6,289	11,527	143,465
Indiana	37,668	4,577	--	4,577	121,509
Indiana	83,216	3,635	9,218	12,853	154,453
Indiana	129,117	8,577	11,545	20,122	155,843
Michigan	77,110	4,655	5,945	10,600	137,466
Michigan	88,374	5,430	6,631	12,061	136,477
Michigan	99,792	4,497	7,479	11,976	120,010
Michigan	59,486	8,528	13,880	22,408	376,694
Michigan	114,813	7,681	11,185	18,866	164,319
Michigan	123,985	6,322	7,895	14,217	114,667
Minnesota	69,189	3,318	6,856	10,174	147,046
Minnesota	61,020	3,238	9,804	13,042	213,733
Minnesota	183,000	7,258	20,622	27,880	152,350
Minnesota	84,143	6,149	6,860	13,009	154,606
Minnesota	82,386	2,687	11,013	13,700	166,290
Minnesota	104,119	7,991	9,043	17,034	163,601
Minnesota	107,574	3,931	9,727	13,658	126,964
Minnesota	132,401	13,149	7,076	20,225	152,756
Minnesota	265,000	13,058	39,699	52,757	199,082
Minnesota	537,318	31,692	49,427	81,119	150,970
Minnesota	433,000	16,484	24,314	40,798	94,221
Minnesota	407,000	15,399	80,570	95,978	235,818
Missouri	90,740	7,864	--	7,864	86,665

Appendix C-2 (Cont'd)

Annual Energy Requirements (1981)
66 Hotels/Motels

Midwestern U.S.

State	Sq Ft	Btu/Elec (Millions)	Btu/Fossil (Millions)	Total Btu's (Millions)	Btu/Sq Ft
Missouri	94,780	4,458	6,596	11,054	116,628
Missouri	90,022	4,587	5,991	10,578	117,504
Missouri	90,964	4,372	6,508	10,880	119,608
Missouri	207,934	9,055	13,850	22,905	110,155
Missouri	124,410	5,052	7,102	12,154	97,693
Missouri	261,718	13,176	16,483	29,659	113,324
Ohio	54,735	3,573	3,587	7,160	130,812
Ohio	48,860	3,841	3,112	6,953	142,304
Ohio	57,200	5,600	2,633	8,233	143,933
Ohio	95,278	6,339	6,055	12,394	130,082
Ohio	61,575	3,490	4,259	7,749	125,847
Ohio	53,818	2,306	8,121	10,427	193,745
Ohio	55,262	3,340	7,668	11,008	199,196
Ohio	86,139	3,104	9,238	12,342	143,280
Ohio	75,884	5,998	5,474	11,472	151,178
Ohio	17,108	1,721	--	1,721	100,596
Ohio	74,238	5,460	3,174	8,634	116,302
Ohio	88,838	6,285	5,015	11,300	127,198
Ohio	95,500	12,816	--	12,816	134,197
Ohio	109,362	7,138	7,167	14,305	130,804
Ohio	120,668	5,836	8,736	14,572	120,761
Ohio	126,902	6,262	11,528	17,792	140,203
Ohio	144,157	7,135	5,618	12,753	88,466
Ohio	165,974	12,387	12,761	25,148	151,518
Ohio	317,000	17,996	35,288	53,284	168,088
Ohio	263,400	15,815	29,466	45,281	171,910
Wisconsin	77,000	6,281	3,010	9,291	120,662
Wisconsin	62,791	3,290	4,435	7,725	123,027
Wisconsin	104,398	4,861	13,313	18,174	174,084
Wisconsin	134,601	8,920	16,071	24,991	185,667
Total/Average 66 Properties	10,943,694	608,115	1,023,960	1,632,075	149,134

Appendix C-3

Annual Energy Requirements (1981)
83 Hotels/Motels

Southeastern U.S.

State	Sq Ft	Btu/Elec (Millions)	Btu/Fossil (Millions)	Total Btu's (Millions)	Btu/Sq Ft
Alabama	72,745	6,389	5,272	11,661	160,299
Alabama	84,214	7,757	3,068	10,825	128,541
Alabama	87,058	6,283	4,701	10,984	126,168
Alabama	130,208	8,633	7,333	15,966	122,619
Alabama	101,157	6,666	4,029	10,695	105,726
Florida	55,448	5,059	2,989	8,048	145,145
Florida	59,247	4,032	8,036	12,068	203,690
Florida	51,682	5,588	517	6,105	118,126
Florida	145,400	11,024	10,367	21,391	147,118
Florida	17,108	1,362	--	1,382	80,781
Florida	17,108	1,659	--	1,659	96,972
Florida	59,840	4,667	2,962	7,629	127,490
Florida	101,023	7,743	3,877	11,620	115,023
Florida	66,872	5,531	3,936	9,467	141,569
Florida	77,706	9,395	798	10,193	131,184
Florida	119,548	11,333	6,223	17,556	146,853
Florida	107,709	11,994	4,349	16,343	151,732
Florida	129,364	14,077	6,663	20,740	160,323
Florida	148,592	12,344	5,695	18,039	121,399
Florida	107,291	7,912	5,739	13,651	127,233
Florida	133,106	9,705	6,506	16,211	121,790
Florida	188,697	16,462	8,198	24,660	130,686
Georgia	136,526	8,068	6,055	14,123	103,445
Georgia	1,170,600	102,026	48,123	150,149	128,266
Kentucky	37,928	3,846	3,163	7,009	184,798
Kentucky	18,230	2,587	--	2,587	144,909
Kentucky	55,151	4,391	3,307	7,698	139,580
Kentucky	73,695	5,817	--	5,817	78,933
Kentucky	66,000	4,926	7,097	12,023	182,166
Kentucky	177,949	12,754	5,124	17,878	100,467
Mississippi	84,250	5,757	5,676	11,433	135,703
Mississippi	93,531	10,244	5,231	15,475	165,453
Mississippi	118,200	10,786	9,053	19,839	167,843
North Carolina	17,108	1,315	--	1,315	78,865
North Carolina	53,050	3,479	6,729	10,208	192,422
North Carolina	84,561	9,035	3,121	12,156	143,754

Appendix C-3 (Cont'd)

Annual Energy Requirements (1981)
83 Hotels/Motels

Southeastern U.S.

State	Sq Ft	Btu/Elec (Millions)	Btu/Fossil (Millions)	Total Btu's (Millions)	Btu/Sq Ft
South Carolina	88,321	5,532	3,504	8,586	97,213
South Carolina	51,200	6,258	2,230	8,488	165,782
South Carolina	58,266	4,037	7,328	11,365	195,054
South Carolina	17,108	1,555	--	1,555	90,893
South Carolina	17,108	1,583	--	1,583	92,530
South Carolina	17,108	1,592	--	1,592	93,056
South Carolina	17,108	1,037	--	1,037	60,615
South Carolina	17,108	1,426	--	1,426	83,353
South Carolina	88,789	7,992	2,192	10,184	114,699
South Carolina	99,350	7,318	7,758	15,076	151,734
South Carolina	83,268	7,861	5,351	13,212	158,668
Tennessee	62,950	4,107	3,162	7,269	115,472
Tennessee	41,819	3,123	1,840	4,963	118,678
Tennessee	92,772	6,820	7,132	13,952	150,390
Tennessee	55,887	4,601	4,095	8,696	155,600
Tennessee	68,612	4,068	2,519	6,587	96,004
Tennessee	54,567	3,658	5,939	9,597	175,876
Tennessee	55,162	3,289	5,381	8,670	157,173
Tennessee	87,148	5,552	6,622	12,174	139,693
Tennessee	71,978	5,946	5,762	11,708	162,661
Tennessee	101,606	5,920	7,294	13,214	130,051
Tennessee	90,838	6,199	5,052	11,251	123,857
Tennessee	77,406	6,457	3,439	9,896	127,845
Tennessee	84,557	6,772	5,693	12,465	147,415
Tennessee	95,738	7,733	5,162	12,895	134,691
Tennessee	121,559	6,356	6,539	12,895	106,080
Tennessee	121,400	6,014	5,425	11,439	94,226
Tennessee	92,750	8,348	2,878	11,226	121,035
Tennessee	122,588	7,476	5,373	12,849	104,815
Tennessee	138,981	9,528	5,552	15,080	108,504
Tennessee	148,482	11,802	8,858	20,660	138,805
Tennessee	144,547	9,448	9,454	18,902	130,767
Tennessee	543,017	27,058	21,571	48,629	89,553
Virginia	62,584	6,621	11	6,632	105,970
Virginia	17,108	1,307	--	1,307	76,397
Virginia	17,108	1,071	--	1,071	62,602

Appendix C-3 (Cont'd)

Annual Energy Requirements (1981)
83 Hotels/Motels

Southeastern U.S.

State	Sq Ft	Btu/Elec (Millions)	Btu/Fossil (Millions)	Total Btu's (Millions)	Btu/Sq Ft
Virginia	17,108	1,282	--	1,282	74,936
Virginia	17,108	1,437	--	1,437	83,996
Virginia	17,108	1,325	--	1,325	77,449
Virginia	17,108	1,381	--	1,381	80,722
Virginia	65,032	4,672	4,980	9,652	148,419
West Virginia	47,860	3,739	2,756	6,495	135,708
West Virginia	48,860	5,046	3,876	8,922	182,603
West Virginia	46,201	3,962	3,845	7,807	138,912
West Virginia	65,924	4,861	7,820	12,681	192,357
West Virginia	77,377	5,455	4,843	10,298	133,089
West Virginia	161,144	10,604	28,447	39,051	242,381
Total/Average 83 Properties	7,964,638	619,895	423,170	1,043,065	130,962

Appendix C-4

Annual Energy Requirements (1981)
37 Hotels/Motels

South Central U.S.

State	Sq Ft	Btu/Elec (Millions)	Btu/Fossil (Millions)	Total Btu's (Millions)	Btu/Sq Ft
Arkansas	48,904	3,984	3,958	7,942	162,400
Arkansas	111,997	9,221	7,511	16,732	149,396
Arkansas	148,003	8,564	7,856	16,420	110,944
Louisiana	83,888	9,077	5,721	14,798	176,402
Louisiana	100,939	9,782	5,399	15,181	150,398
Louisiana	77,884	7,881	4,029	11,910	152,920
Louisiana	127,990	12,375	7,783	20,158	157,497
Louisiana	969,699	108,047	49,637	157,684	162,611
Oklahoma	86,314	6,423	5,179	11,602	134,416
Texas	37,001	2,423	1,529	3,952	106,808
Texas	37,375	2,379	1,912	4,291	114,809
Texas	37,375	2,322	1,518	3,840	102,742
Texas	53,804	4,767	2,489	7,256	134,860
Texas	38,123	2,,168	1,923	4,091	107,310
Texas	38,870	2,200	1,885	4,085	105,094
Texas	38,870	2,023	1,628	3,651	93,928
Texas	38,870	2,924	1,255	4,179	107,512
Texas	39,618	3,746	470	4,216	106,416
Texas	91,602	6,721	4,888	11,669	126,733
Texas	45,598	2,253	1,483	3,736	81,933
Texas	45,598	2,326	1,797	4,123	90,421
Texas	47,466	3,079	860	3,939	82,985
Texas	48,214	3,369	3,537	6,906	143,236
Texas	62,707	5,014	3,681	8,615	138,661
Texas	90,604	6,123	5,689	11,812	130,370
Texas	59,897	7,617	2,595	10,212	170,492
Texas	73,907	5,683	6,199	11,882	160,770
Texas	78,412	5,216	5,352	10,568	134,775
Texas	123,926	6,410	5,294	13,704	110,582
Texas	113,282	8,066	8,737	16,803	148,329
Texas	88,186	7,272	6,404	13,676	155,081
Texas	132,168	7,294	5,027	12,321	93,222

Appendix C-4 (Cont'd)

Annual Energy Requirements (1981)
37 Hotels/Motels

South Central U.S.

State	Sq Ft	Btu/Elec (Millions)	Btu/Fossil (Millions)	Total Btu's (Millions)	Btu/Sq Ft
Texas	82,984	5,473	--	5,473	65,952
Texas	171,205	9,912	12,357	22,269	130,072
Texas	203,885	16,751	13,588	30,339	148,826
Texas	593,807	71,451	83,469	154,920	260,893
Texas	132,400	7,387	5,341	12,728	96,133
Total/Average-37 Properties	4,401,372	389,723	287,980	677,703	153,975

Appendix C-5

Annual Energy Requirements (1981)
17 Hotels/Motels

Rocky Mountain States

State	Sq Ft	Btu/Elec (Millions)	Btu/Fossil (Millions)	Total Btu's (Millions)	Btu/Sq Ft
Arizona	57,387	4,008	4,116	8,124	141,566
Arizona	57,714	3,501	4,704	8,205	142,166
Arizona	70,065	6,130	3,619	9,749	139,142
Arizona	75,353	5,103	5,144	10,247	139,986
Colorado	94,846	4,227	7,270	11,497	121,218
Colorado	183,000	4,541	12,065	16,607	90,743
Idaho	153,315	14,056	--	14,056	91,681
Nevada	66,357	2,568	5,609	8,177	123,228
Nevada	95,689	5,756	3,617	9,373	97,952
Nevada	152,763	6,908	7,507	14,415	94,361
Nevada	263,274	16,240	8,650	24,890	94,540
Nevada	2,388,361	200,052	134,157	334,209	139,932
New Mexico	146,224	7,834	7,547	15,381	105,187
New Mexico	39,618	1,567	1,748	3,315	83,674
Utah	49,950	3,039	2,104	5,143	103,804
Uath	80,649	3,512	9,482	12,994	161,118
Uath	81,378	4,381	7,049	11,430	140,455
Total/Average-17 Properties	4,055,943	293,423	224,388	517,811	127,667

Appendix C-6

Annual Energy Requirements (1981)
31 Hotels/Motels

Pacific Coast States

State	Sq Ft	Btu/Elec (Millions)	Btu/Fossil (Millions)	Total Btu's (Millions)	Btu/Sq Ft
Alaska	137,104	7,288	12,840	20,120	146,809
California	70,883	3,124	3,233	6,357	89,683
California	66,665	3,784	2,887	6,671	100,068
California	63,898	3,990	3,113	7,103	111,161
California	44,720	2,993	4,754	7,747	173,233
California	59,732	3,380	3,282	6,662	111,531
California	92,496	7,625	11,290	18,915	204,494
California	76,227	3,007	2,759	5,766	75,642
California	143,081	7,355	6,448	13,803	96,470
California	101,006	6,139	11,274	17,413	172,395
California	77,309	4,760	6,632	11,392	54,276
California	109,325	5,569	3,855	9,424	86,202
California	83,959	4,518	5,021	9,539	110,871
California	118,792	6,802	7,181	13,983	117,710
California	104,280	5,623	4,884	10,507	100,757
California	144,716	15,067	9,040	24,107	166,581
California	152,060	8,247	9,514	17,761	116,802
California	256,608	6,686	11,689	18,375	71,607
California	195,058	8,203	11,437	19,640	100,688
California	300,434	11,221	19,946	31,167	103,740
California	192,812	11,579	3,199	14,778	76,644
California	257,855	14,956	14,903	29,859	115,797
California	334,804	13,456	15,726	29,182	87,161
California	1,186,000	54,527	75,449	129,976	109,592
Hawaii	90,318	8,604	3,075	11,679	129,809
Hawaii	233,626	20,951	12,063	33,014	141,311
Hawaii	151,341	5,391	5,309	10,700	70,701
Oregon	304,965	16,450	20,921	37,371	122,542
Washington	124,175	4,795	10,101	14,896	119,960
Washington	65,553	2,248	4,207	6,455	98,470
Washington	30,545	2,172	3,428	5,600	183,336
Total/Average-31 Properties	5,370,347	280,510	319,460	599,970	111,719

APPENDIX D

Domestic Water Use by 191 Hotels/Motels - 1981

By Size of Property

Appendix D-1: Less than 75 Rooms (20 Properties)

Appendix D-2: 76 to 150 Rooms (50 Properties)

Appendix D-3: 151 to 200 Rooms (39 Properties)

Appendix D-4: 201 to 300 Rooms (54 Properties)

Appendix D-5: 301 to 500 Rooms (16 Properties)

Appendix D-6: Over 500 Rooms (12 Properties)

Appendix D-1

Domestic Water Use by Hotels/Motels
1981
(Less than 75 Rooms - 20 Properties)

Property Location (State)	No. of Guests	Facilities[1]	Gallons Per Available Room	Gallons Per Occupied Room	Gallons Per Guest
Florida	24,227	L	143	-	103
Florida	26,674	L	107	-	70
Florida	21,907	L	166	-	133
North Carolina	30,539	L, SP	161	-	93
North Carolina	21,356	L	121	-	99
North Carolina	29,583	L	101	-	60
Ohio	17,567	L	73	-	73
Ohio	19,359	L	93	-	84
South Carolina	19,529	L	96	-	87
South Carolina	23,251	L	82	-	62
South Carolina	19,936	L,SP	163	-	143
South Carolina	22,923	L	173	-	132
South Carolina	26,127	L	106	-	71
South Carolina	25,344	L	69	-	48
Virginia	20,023	L	86	-	75
Virginia	20,045	L	97	-	85
Virginia	27,014	L	134	-	87
Virginia	26,658	L	89	-	59
Virginia	18,393	L	79	-	75
Virginia	25,025	L	98	-	69

Note:
1 Facilities. L denotes property has a kitchen.
SP denotes property has a swimming pool.

Appendix D-2

Domestic Water Use by Hotels/Motels
1981
(76 to 150 Rooms - 50 Properties)

Property Location (State)	No. of Rooms	Facilities[1]	Gallons Per Available Room	Gallons Per Occupied Room	Gallons Per Guest
Arizona	141	K, L, SP	233	303	-
Arizona	143	K, L, SP	196	306	-
Arizona	108	K, L, SP	233	314	-
Arkansas	83	L, SP	106	124	-
California	124	K, L, SP	246	324	-
California	126	K, L, SP	201	219	-
California	126	K, L, SP	157	176	-
California	128	K, L, SP	219	234	-
California	132	K, L, SP	176	203	-
Florida	116	K, L, SP	238	376	-
Florida	120	L, SP	172	-	136
Kentucky	84	L, SP	-	-	138
Kentucky	141	L, SP	-	-	155
Maryland	141	K, L, SP	125	137	-
Massachusetts	116	K, L, SP	105	138	-
Michigan	147	K, L, SP	139	209	-
Minnesota	126	K, SP	125	-	172
New Hampshire	120	K, L, SP	148	218	-
North Carolina	132	K, L, SP	168	218	-
New Mexico	106	L, SP	190	-	132
New York	119	K, L, SP	217	259	-
Ohio	104	L, SP	-	-	162
Ohio	106	L, SP	-	-	146
Ohio	107	K, L, SP	-	-	283
Ohio	120	L, SP	-	-	160
Ohio	140	K, L, SP	252	377	-
Ohio	142	L, SP	-	-	140
Ohio	149	K, L, SP	123	181	-
Ohio	148	K, L, SP	161	215	-
Pennsylvania	135	K, L, SP	202	290	-
South Carolina	122	K, L, SP	193	241	-
Tennessee	97	K, L, SP	196	282	-
Tennessee	120	L, SP	-	-	139
Tennessee	114	K, L, SP	183	212	-
Tennessee	130	K, L, SP	228	363	-

Appendix D-2

Domestic Water Use by Hotels/Motels
1981
(76 to 150 Rooms - 50 Properties)
(Cont'd)

Property Location (State)	No. of Rooms	Facilities[1]	Gallons Per Available Room	Gallons Per Occupied Room	Gallons Per Guest
Tennessee	150	K, L, SP	131	241	-
Texas	100	L, SP	115	-	80
Texas	101	K, L, SP	264	461	-
Texas	104	L, SP	118	-	115
Texas	104	L, SP	138	-	94
Texas	138	L, SP	105	-	-
Texas	132	K, L, SP	271	277	-
Texas	122	L, SP	117	-	96
Texas	102	L, SP	177	-	139
Texas	127	L, SP	125	-	-
Texas	129	L, SP	168	-	127
Virginia	130	K, L, SP	160	253	-
Washington	109	K, L, SP	255	355	-
West Virginia	109	L, SP	-	-	169
Wisconsin	106	K, L, SP	166	223	-

Note:
1 Facilities. K denotes property has a kitchen.
L denotes property has a laundry.
SP denotes property has a swimming pool.

Appendix D-3

Domestic Water Use By Hotels/Motels
1981
151 - 200 Rooms (39 Properties)

Property Location (State)	No. of Rooms	Facilities[1]	Gallons Per Available Room	Gallons Per Occupied Room	Gallons Per Guest
Alabama	160	K, L, SP	221	309	-
Arizona	159	K, L, SP	192	395	-
California	171	K, L, SP	262	238	-
California	190	K, L, SP	188	235	-
California	200	K, L, SP	199	268	-
Colorado	168	K, L, SP	144	212	-
Florida	180	K, L, SP	212	341	-
Florida	192	K, L, SP	160	-	153
Illinois	191	K, L, SP	-	-	147
Indiana	161	K, L, SP	128	220	-
Kentucky	172	K, L, SP	-	-	167
Louisiana	200	K, L, SP	176	-	178
Michigan	152	K, L, SP	126	162	-
Michigan	153	K, L, SP	130	199	-
Michigan	155	K, L, SP	296	251	-
Minnesota	173	K, L, SP	178	258	-
Minnesota	165	K, L	122	-	124
Minnesota	194	K, L, SP	108	200	-
Missouri	167	K, L, SP	184	272	-
Nevada	150	K, L, SP	171	319	-
New York	152	K, L, SP	-	-	105
North Carolina	165	K, L, SP	190	358	-
Oklahoma	159	K, L, SP	-	-	153
South Carolina	152	K, L, SP	266	357	-
South Carolina	176	K, L, SP	227	273	-
South Carolina	180	K, L, SP	208	208	-
Tennessee	152	K, L, SP	186	186	-
Tennessee	161	K, L, SP	178	178	-
Tennessee	171	K, L, SP	251	251	-
Tennessee	173	K, L, SP	199	199	-
Tennessee	178	K, L, SP	135	135	-
Texas	163	K, L, SP	147	147	-
Texas	165	K, L, SP	188	188	-
Texas	175	K, L, SP	170	170	-
Texas	178	K, L, SP	169	169	-
Texas	192	K, L, SP	237	237	-
Utah	160	K, L, SP	224	274	-
Virginia	199	K, L, SP	134	134	-
Wisconsin	185	K, L, SP	134	134	-

Note: [1] Facilities. K denotes property has a kitchen. L denotes property has a laundry. SP denotes property has a swimming pool.

Appendix D-4

Domestic Water Use By Hotels/Motels
1981
201 - 300 Rooms (54 Properties)

Property Location (State)	No. of Rooms	Facilities[1]	Gallons Per Available Room	Gallons Per Occupied Room	Gallons Per Guest
Alabama	202	K, L, SP	191	340	-
Alabama	210	K, L, SP	257	399	-
Alabama	242	K, L, SP	127	316	-
Alaska	252	K, L, SP	-	-	146
Arkandas	293	K, L, SP	77	124	-
Arkansas	202	K, L, SP	185	212	-
California	201	K, L, SP	152	194	-
California	210	K, L, SP	-	-	186
California	200	K, L, SP	123	148	-
California	251	K, L, SP	-	-	220
Flordia	216	K, L, SP	309	466	-
Florida	224	K, L, SP	196	234	-
Florida	338	K, L, SP	288	380	-
Florida	266	K, L, SP	168	232	-
Hawaii	247	K, L, SP	97	138	-
Illinois	213	K, L, SP	179	219	-
Illinois	233	K, L, SP	77	112	-
Illinois	234	K, L, SP	173	241	-
Illinois	243	K, L, SP	105	169	-
Indiana	229	K, L, SP	115	155	-
Indiana	263	K, L, SP	120	226	-
Louisiana	201	K, L, SP	-	-	131
Louisiana	233	K, L, SP	375	417	-
Massachusetts	304	K, L, SP	121	139	-
Michigan	208	K, L, SP	-	-	153
Michigan	211	K, L, SP	122	182	-
Mississippi	250	K, L, SP	-	-	88
Missouri	243	K, L, SP	126	274	-
Missouri	262	K, L, SP	173	332	-
Missouri	256	K, L, SP	177	244	-
Missouri	220	K, L, SP	-	-	207
Missouri	237	K, L, SP	96	218	-
Nevada	203	K, L, SP	192	265	-
Nevada	285	K, L, SP	-	-	148
New Mexico	291	K, L, SP	119	161	-
New York	224	K, L, SP	99	116	-
Ohio	214	K, L, SP	-	-	162
Ohio	246	K, L, SP	-	-	226
Ohio	248	K, L, SP	142	259	-
Ohio	207	K, L, SP	129	205	-

Appendix D-4

Domestic Water Use By Hotels/Motels
1981
201 - 300 Rooms (54 Properties)
(Cont'd)

Property Location (State)	No. of Rooms	Facilities[1]	Gallons Per Available Room	Gallons Per Occupied Room	Gallons Per Guest
Ohio	224	K, L, SP	134	222	-
Pennsylvania	294	K, L, SP	96	143	-
South Carolina	265	K, L, SP	180	232	-
Tennessee	205	K, L, SP	166	220	-
Tennessee	207	K, L, SP	117	151	-
Tennessee	207	K, L, SP	141	183	-
Tennessee	215	K, L, SP	140	206	-
Tennessee	216	K, L, SP	156	327	-
Tennessee	233	K, L, SP	130	238	-
Tennessee	238	K, L, SP	114	170	-
Tennessee	272	K, L, SP	163	211	-
Texas	208	K, L, SP	238	308	-
Texas	285	K, L, SP	-	-	125
Washington	260	K, L, SP	129	184	-

Note:
1 Facilities. K denotes property has a kitchen.
L denotes property has a laundry.
SP denotes property has a swimming pool.

Appendix D-5

Domestic Water Use By Hotels/Motels
1981
301 - 500 Rooms (16 Properties)

Property Location (State)	No. of Rooms	Facilities[1]	Gallons Per Available Room	Gallons Per Occupied Room	Gallons Per Guest
California	390	K, L, SP	187	249	-
California	337	K, L, SP	182	222	-
California	405	K, L, SP	207	257	-
California	403	K, L, SP	148	164	-
Florida	340	K, L, SP	323	511	-
Hawaii	311	K, L, SP	80	171	-
Illinois	412	K, L, SP	124	203	-
Illinois	445	K, L, SP	-	-	172
Minnesota	305	K, L, SP	148	214	-
New York	474	K, L, SP	171	323	-
Ohio	315	K, L, SP	-	-	174
Ohio	380	K, L, SP	181	291	-
Oregon	460	K, L, SP	168	-	230
Pennsylvania	378	K, L, SP	177	-	216
Tennessee	301	K, L, SP	220	285	-
Texas	348	K, L, SP	-	-	250

Note:
1 Facilities. K denotes property has a kitchen.
L denotes property has a laundry.
SP denotes property has a swimming pool.

Appendix D-6

Domestic Water Use By Hotels/Motels
1981
Over 500 Rooms (12 Properties)

Property Location (State)	No. of Rooms	Facilities[1]	Gallons Per Available Room	Gallons Per Occupied Room	Gallons Per Guest
California	541	K, L, SP	115	-	113
California	557	K, L, SP	148	190	-
California	1,800	K, L, SP	147	-	121
Georgia	1,209	K, L, SP	270	-	291
Hawaii	636	K, L, SP	266	307	-
Illinois	500	K, L, SP	151	213	-
Illinois	2,275	K, L, SP	195	-	364
Louisiana	1,146	K, L, SP	232	-	187
Nevada	511	K, L, SP	98	133	-
Nevada	3,174	K, L, SP	211	-	236
New York	2,131	K, L, SP	178	-	155
Tennessee	546	K, L, SP	267	474	-

Note:

1 Facilities. K denotes property has a kitchen.
L denotes property has a laundry.
SP denotes property has a swimming pool.

APPENDIX E

Domestic Water Use By Season of Year of 32 Hotels/Motels - 1981

By State and Region

Appendix E-1: Northeast U.S. (5 Properties)

Appendix E-2: South Central & Southeast U.S. (13 Properties)

Appendix E-3: Rocky Mountain Region (5 Properties)

Appendix E-4: Pacific Region (9 Properties)

Appendix E-1

Domestic Water Use - 1981
By Season of Year
Selected Motels/Hotels

Northeast U.S.

Location & No. of Rooms		Available Rooms	Occupied Rooms	Total Gallons	Gallons Available Room	Gallons Occupied Room
Connecticut - 359 Rooms	Winter	35,182	24,557	3,480,903	99	142
	Spring	32,669	25,090	3,502,604	107	140
	Summer	32,669	23,031	4,007,572	122	174
	Fall	32,669	23,554	4,276,140	131	182
Totals/Averages		133,189	96,232	15,267,222	115	159
Dist. of Columbia - 149 Rooms	Winter	14,210	8,824	3,479,413	245	394
	Spring	13,195	11,440	3,424,802	250	299
	Summer	13,195	9,540	5,652,644	428	592
	Fall	13,195	9,342	4,739,962	359	507
Totals/Averages		53,795	39,146	17,296,821	322	442
Maryland - 141 Rooms	Winter	13,818	11,400	1,200,701	87	105
	Spring	12,831	11,548	1,422,138	111	123
	Summer	12,831	12,177	1,955,533	152	161
	Fall	12,831	12,305	1,728,859	135	140
Totals/Averages		52,311	47,430	6,307,231	121	133
New Hampshir 120 Rooms	Winter	11,760	7,009	1,238,854	105	177
	Spring	10,920	6,312	1,428,183	131	226
	Summer	10,920	7,076	2,824,078	259	399
	Fall	10,920	7,753	965,049	88	124
Totals/Averages		44,520	28,150	6,456,104	145	229
Pennsylvania - 294 Rooms	Winter	28,420	16,768	3,264,708	115	195
	Spring	26,390	18,315	3,135,287	119	171
	Summer	26,390	17,206	3,930,517	149	228
	Fall	26,208	18,450	3,604,346	138	195
Totals/Averages		107,408	70,739	13,934,858	130	197
Average/5 Properties 217 Rooms		78,245	56,339	11,852,447	167	232

Appendix E-2

Domestic Water Use - 1981
By Season of Year
Selected Motels/Hotels

South Central & Southeast U.S.

Location & No. of Rooms		Available Rooms	Occupied Rooms	Total Gallons	Gallons Available Room	Gallons Occupied Room
Florida - 178 Rooms	Winter	17,444	11,635	2,877,941	165	247
	Spring	16,198	11,549	3,840,745	237	332
	Summer	16,198	11,225	4,362,919	269	389
	Fall	16,198	6,829	2,984,919	184	437
Totals/Averages		66,038	41,238	14,066,524	213	341
Florida - 504 Rooms	Winter	41,328	24,673	11,778,086	285	477
	Spring	45,864	31,187	11,536,450	251	370
	Summer	45,864	28,069	13,534,625	295	483
	Fall	45,864	23,712	11,950,897	260	504
Totals/Averages		178,920	107,641	48,800,058	273	453
Florida - 334 Rooms	Winter	32,732	20,425	7,849,813	240	384
	Spring	30,394	28,479	9,102,133	299	320
	Summer	30,394	29,543	11,757,888	387	398
	Fall	30,394	17,659	7,614,162	250	431
Totals/Averages		123,914	96,106	36,323,995	293	378
Florida - 642 Rooms	Winter	62,916	30,451	4,514,035	72	148
	Spring	58,422	44,342	8,793,915	150	198
	Summer	58,422	48,782	9,585,405	164	196
	Fall	58,422	27,341	5,914,479	101	216
Totals/Averages		238,182	150,916	28,807,834	121	191
Mississippi - 207 Rooms	Winter	20,286	13,186	2,893,651	143	219
	Spring	18,837	14,278	2,463,493	131	172
	Summer	18,837	17,123	3,178,677	169	186
	Fall	18,837	14,692	2,521,845	139	172
Totals/Averages		76,797	59,279	11,057,666	144	186
North Carolina - 131 Rooms	Winter	12,866	9,431	1,660,034	129	176
	Spring	12,012	9,453	2,382,698	198	252
	Summer	12,012	10,450	2,435,814	203	233
	Fall	12,012	8,444	1,622,629	135	192
Totals/Averages		48,902	37,778	8,101,175	166	214
Tennessee - 130 Rooms	Winter	12,740	6,128	2,169,490	170	354
	Spring	11,830	7,465	2,439,554	206	327
	Summer	11,830	9,417	3,623,796	306	385
	Fall	11,830	6,956	2,634,808	223	379
Totals/Averages		48,230	29,966	10,867,649	225	371

Appendix E-2

Domestic Water Use - 1981
By Season of Year
Selected Motels/Hotels

South Central & Southeast U.S.
(Cont'd)

Location & No. of Rooms		Available Rooms	Occupied Rooms	Total Gallons	Gallons Available Room	Gallons Occupied Room
Tennessee - 152 Rooms	Winter	14,896	8,848	2,262,254	152	256
	Spring	13,832	9,668	2,278,713	165	236
	Summer	13,832	10,443	3,207,105	232	307
	Fall	13,832	9,724	2,664,732	193	274
Totals/Averages		56,392	38,683	10,412,804	185	269
Texas - 165 Rooms	Winter	16,170	25,109	2,093,428	129	83
	Spring	15,015	11,748	2,303,400	153	196
	Summer	15,015	12,838	3,456,970	230	269
	Fall	15,015	12,012	3,161,471	210	263
Totals/Averages		61,215	61,701	11,017,269	180	178
Texas - 162 Rooms	Winter	15,876	11,113	1,890,449	119	170
	Spring	14,742	10,983	2,017,626	137	184
	Summer	14,742	12,634	2,234,515	152	177
	Fall	14,742	12,840	2,359,507	160	184
Totals/Averages		60,102	47,570	8,502,157	141	179
Texas - W 175 Rooms	Winter	17,150	13,943	2,530,822	147	181
	Spring	15,925	13,377	2,531,570	159	189
	Summer	15,925	15,017	3,673,919	231	244
	Fall	15,925	14,173	2,141,062	134	151
Totals/Averages		64,925	56,510	10,877,374	167	192
Texas - 208 Rooms	Winter	20,384	13,290	3,786,134	186	285
	Spring	18,928	15,615	4,402,568	233	282
	Summer	18,928	16,543	5,197,051	274	314
	Fall	18,928	13,950	4,889,582	258	350
Totals/Averages		77,168	59,398	18,275,335	237	308
Texas - 168 Rooms	Winter	16,464	11,475	2,431,325	148	212
	Spring	15,288	12,215	3,499,612	229	286
	Summer	15,288	13,163	4,388,355	287	333
	Fall	15,288	11,130	2,861,482	187	257
Totals/Averages		62,328	47,983	13,180,774	211	275
Average/13 Properties 210 Rooms		77,541	55,561	15,352,708	198	276

Appendix E-3

Domestic Water Use - 1981
By Season of Year
Selected Motels/Hotels

Rocky Mountain U.S.

Location No. of Rooms		Available Rooms	Occupied Rooms	Total Gallons	Gallons Available Room	Gallons Occupied Room
Arizona - 143 Rooms	Winter	14,014	9,614	2,537,555	181	264
	Spring	13,013	8,914	2,430,577	187	273
	Summer	13,013	7,209	2,672,213	205	371
	Fall	13,013	7,833	2,678,198	206	342
Totals/Averages		53,053	33,570	10,318,543	194	307
Arizona - 144 Rooms	Winter	14,112	8,453	2,279,461	162	270
	Spring	13,104	7,522	2,049,794	156	272
	Summer	13,104	6,513	2,481,448	189	381
	Fall	13,104	6,906	2,480,700	189	359
Totals/Averages		53,424	29,394	9,291,403	174	316
Nevada - 202 Rooms	Winter	19,796	12,313	2,902,628	147	236
	Spring	18,382	13,731	3,619,308	197	263
	Summer	18,382	15,275	4,235,742	230	277
	Fall	18,382	13,547	3,597,613	196	265
Totals/Averages		74,942	54,866	14,355,291	192	262
Nevada - 150 Rooms	Winter	14,700	5,454	1,817,883	124	333
	Spring	13,650	7,330	1,951,045	143	266
	Summer	13,650	10,579	2,895,147	212	274
	Fall	13,650	7,412	2,693,160	197	363
Totals/Averages		55,650	30,775	9,957,235	179	324
Colorado - 168 Rooms	Winter	16,464	8,627	2,196,422	133	255
	Spring	15,288	9,861	2,518,853	165	255
	Summer	15,288	12,292	2,037,076	133	166
	Fall	15,288	10,671	2,378,958	155	222
Totals/Averages		62,328	41,451	9,131,309	147	220
Average/5 Properties 161 Rooms		59,879	38,011	10,610,756	177	279

Appendix E-4

Domestic Water Use - 1981
By Season of Year
Selected Motels/Hotels

Pacific U.S.

Location & No. of Rooms		Available Rooms	Occupied Rooms	Total Gallons	Gallons Available Room	Gallons Occupied Room
California - 202 Rooms	Winter	19,796	24,319	2,638,549	133	108
	Spring	18,382	14,742	2,105,902	114	143
	Summer	18,382	17,132	2,325,095	126	136
	Fall	18,382	14,393	2,187,444	119	152
Totals/Averages		79,942	70,586	9,256,990	123	131
California - 233 Rooms	Winter	22,834	18,472	3,780,897	165	205
	Spring	21,203	16,920	3,857,204	182	228
	Summer	21,203	18,849	4,448,203	210	236
	Fall	21,203	15,839	4,206,566	198	265
Totals/Averages		86,443	70,080	16,292,870	188	232
California - 128 Rooms	Winter	12,544	11,202	1,670,507	133	149
	Spring	11,648	11,427	3,234,784	278	283
	Summer	11,648	11,462	2,461,249	211	215
	Fall	11,648	10,669	2,469,478	212	231
Totals/Averages		47,488	44,760	9,830,019	207	220
California - 126 Rooms	Winter	12,348	10,990	2,165,749	175	197
	Spring	11,466	10,583	2,334,072	203	220
	Summer	11,466	11,099	2,622,839	229	236
	Fall	11,466	10,377	2,050,542	179	198
Totals/Averages		46,746	43,049	9,173,202	196	213
California - 126 Rooms	Winter	12,348	10,644	1,478,994	120	139
	Spring	11,466	10,239	1,476,001	129	129
	Summer	11,466	11,088	2,040,817	178	184
	Fall	11,466	10,147	2,184,452	190	215
Totals/Averages		46,746	42,118	7,180,264	154	170
Hawaii - 247 Rooms	Winter	24,206	19,219	3,011,851	124	157
	Spring	22,477	20,319	3,204,112	142	158
	Summer	22,477	21,083	3,758,454	167	178
	Fall	22,477	18,993	3,419,565	152	180
Totals/Averages		91,637	79,614	13,393,982	146	168
Hawaii - 636 Rooms	Winter	62,328	47,868	14,924,595	239	312
	Spring	57,876	50,353	15,662,970	271	311
	Summer	57,876	52,783	16,374,413	283	310
	Fall	57,876	51,162	15,224,583	263	298
Totals/Averages		235,956	202,165	62,186,561	263	308

Appendix E-4

Domestic Water Use - 1981
By Season of Year
Selected Motels/Hotels

Pacific U.S.
(Cont'd)

Location & No. of Rooms		Available Rooms	Occupied Rooms	Total Gallons	Gallons Available Room	Gallons Occupied Room
Washington - 256 Rooms	Winter	25,088	17,863	2,865,971	114	160
	Spring	23,296	16,424	2,952,003	127	180
	Summer	23,296	19,382	3,587,888	154	185
	Fall	23,296	15,375	2,670,717	115	174
Totals/Averages		94,976	69,044	12,076,578	127	175
Washington - 109 Rooms	Winter	10,682	6,067	2,046,802	192	337
	Spring	9,919	7,261	2,375,217	239	327
	Summer	9,919	8,411	2,972,949	300	353
	Fall	9,919	7,370	2,506,135	253	340
Totals/Averages		40,439	29,109	9,825,293	243	337
Average/9 Properties 229 Rooms		85,597	72,281	16,579,529	194	229